

Zipiko



User Experience

Stefano J. Attardi

Master of Arts in New Media

University of Art and Design Helsinki

ABSTRACT

<i>Department</i> Media Lab	<i>Degree programme</i> New Media	<i>Graduation year</i> 2009
<i>Author</i> Attardi, Stefano Jacopo		
<i>Title</i> Zipiko User Experience		
<i>Level</i> Diploma Work	<i>Number of pages</i> 103	

Abstract

Zipiko is a mobile-enabled web service designed to facilitate sharing social plans with friends and organize spontaneous get-togethers. It was developed between March and December 2008, initially as a collaboration between Media Lab Helsinki students, later as the main project at Helsinki startup Zipipop.

I will analyze in detail the processes, techniques and challenges related to designing user experiences for the web in general and the mobile web in particular. I will describe how various design tools (paper prototyping, software prototyping, mockups, user testing, site metrics, split testing) were used to address the different parts of the user experience (user needs, functional specifications, interaction design, information design, interface design, visual design). I will discuss the solutions adopted in the light of user test results and user feedback.

Zipiko received consistently positive feedback, but it failed to attract regular users. I will discuss some of the possible reasons for this disconnect. Launching a social web service in a time of changing mobile landscape, of the rise of Facebook as the main social media destination, and of economic crisis, proved to be very challenging.

*Materials**Keywords*

User experience, interaction design, information design, interface design, visual design, paper prototyping, software prototyping, user testing, user feedback, social media, web service.

*Where deposited**Confidential until*



Stefano J. Attardi
March 2009

Zipiko User Experience
MA Thesis

Tutor: Jon Fabritius

Master of Arts in New Media
Media Lab Helsinki
University of Art and Design Helsinki

TAIDETEOLLINEN
KORKEAKOULU
UNIVERSITY OF ART AND
DESIGN HELSINKI



Set in Joanna MT, designed by Eric Gill.
Printed and bound in Helsinki, Finland.

Contents

13	1	Introduction
15	2	Context
16	2.1	User experience
18	2.2	The project
18	2.2.1	Zipipop
18	2.2.2	Going for One?
18	2.2.3	Inception
19	2.2.4	Team
20	2.2.5	My role
20	2.2.6	Work environment
22	2.3	Ecosystem
22	2.3.1	Related web services
25	2.3.2	Direct competitors
27	2.3.3	Trends
29	2.3.4	Devices
31	2.3.5	Interfaces
34	2.3.6	State of the economy
35	3	Strategy
36	3.1	Users
37	3.1.1	User segmentation
39	3.2	User needs
39	3.2.1	Intention broadcasting
39	3.2.2	Spontaneous planning
39	3.2.3	Shared social calendar
40	3.2.4	Public events calendar
40	3.2.5	Invites
40	3.2.6	Reminders
41	3.3	Site objectives
41	3.3.1	Revenue model
41	3.3.2	Pervasive interface
43	4	Process
44	4.1	Timeline

44	4.1.1	Start
44	4.1.2	Forum Nokia Mobile Innovation competition
44	4.1.3	Mobile 2.0 Europe in Barcelona
45	4.1.4	Mobile 2.0 in San Francisco
45	4.1.5	Turning point
46	4.2	Design process
46	4.2.1	Paper prototyping
48	4.2.2	Software prototyping
49	4.2.3	Mockups
50	4.2.4	User testing
50	4.2.5	User feedback
51	4.2.6	Site metrics
52	4.2.7	Split testing
53	5	Results
54	5.1	Overall design decisions
54	5.1.1	Unified mobile and desktop interface
55	5.1.2	Minimizing typing and cursor movement
56	5.1.3	Vertical snapping interface
57	5.1.4	Suggestion and autocompletion
58	5.1.5	Natural language approach
59	5.1.6	Use of colors
61	5.1.7	Buttons
61	5.1.8	Input fields and labels
63	5.1.9	Hover controls
64	5.1.10	Empty states
64	5.1.11	Layout
66	5.2	Interaction
66	5.2.1	Initial structure
66	5.2.2	Revised structure with gradual engagement
68	5.3	Parts of the service
68	5.3.1	Event creation
70	5.3.2	Event list
71	5.3.3	Event detail
72	5.3.4	Invites
73	5.3.5	Reminders and confirmations
73	5.3.6	Groups
75	5.3.7	Sign up and sign in
76	5.3.8	Settings

78	5.4	Revenue model
79	5.5	Gradual engagement
81	6	Reflections
82	6.1	Obstacles to acceptance
82	6.1.1	User needs
83	6.1.2	Communication of the service
83	6.1.3	Social media fatigue
84	6.1.4	Brand
84	6.1.5	Social perception
85	6.1.6	Perception of the mobile web
88	6.2	Process
88	6.2.1	Exploration against refinement
89	6.2.2	Prioritisation
89	6.2.3	Mobile version
91	6.3	Next steps
91	6.3.1	Metrics and split testing
91	6.3.2	Facebook integration
91	6.3.3	iPhone Application
91	6.3.4	Re-targeting
92	6.3.5	Funding
93	6.4	Final words
95	7	Acknowledgements
97	8	Bibliography

1 Introduction

Online communities have been around almost as long as the Internet itself. As the Internet was originally available only to a niche of the population, people turned to online social tools (Usenet, IRC, web communities...) to meet and interact with remote strangers, often sharing similar interests, sometimes adopting different personalities under the cover of anonymity.

As more people get access to the Internet, it becomes possible to connect with specific people you might already know in real life, such as an old childhood friend, or the girl next door. In fact, most of your existing friends are also using the Internet. It is now possible for online social services – now called *social networking* sites, or *social media* – to support and enhance existing relationships rather than creating new ones.

The prime example of this is Facebook (2009). The main purpose of the now leading social media site is to allow you to keep in touch with current and old friends.

Your friends on Facebook are the same friends, acquaintances and family members that you communicate with in the real world. (Facebook 2009)

The staggering growth of Facebook proves that there is a strong need for this. However, the best way to strengthen existing relationships is an old one: meeting in person. Social networking sites would do best to acknowledge this, otherwise they run the risk of competing with – if not being replaced by – physical interactions, once the novelty of social media wears off.

The best strategy for a social tool that strives to support – rather than fight – these ingrained habits is to encourage face-to-face meetings. This is the strategy we set out to pursue with Zipiko.

Zipiko is a web service whose aim is to make it easier to share social plans with friends in order to increase the opportunities for spontaneous and last-minute real-life encounters. Zipiko paves the way for a new generation of online social tools that enable coordination in real life, rather than communication or collaboration.

In order for it to become integrated in people's everyday lives, Zipiko was designed to be used through mobile phones as well as computers. Mobile phones are nowadays more widespread than computers, and they are always at hand whenever the person wishes to communicate or needs to be reached. As capabilities of mobile devices increase, many of the original uses of computers are now expected to switch to mobile phones. New interactions are also emerging which depend on the constantly available nature of mobile devices.

The rise in mobile Internet use has been predicted for many years, but a lack of usability of mobile devices and the low quality and high cost of cellular connectivity have dampened adoption. The introduction of the iPhone and Google Android are signs that this might be about to change. The iPhone in

particular has raised the bar in mobile interface usability and sparked creativity in the field. The time for successful social tools for mobile devices might be close.

Zipiko was developed in this time of rapid change in the mobile ecosystem, between March and December 2008. It was initially a collaboration between Media Lab students as a Forum Nokia Mobile Innovation 2008 competition entry, and it later became the main project at Helsinki startup Zipipop.

This thesis is about the design of the user experience of Zipiko, on which I worked on as main developer and lead interaction designer. I will discuss both the process and the outcome, as the successes and failures of the final result are often the direct consequence of the context and methods in which the work took place. Rather than simply pointing out where the outcome is lacking, my goal is to investigate what led to that outcome, and what could have been done differently to improve it.

The thesis is organized as follows.

In chapter 1 I will define the term user experience, as it helps understand the different design work that went into the project and how the parts fit together. I will analyze the context in which the project took place and the global ecosystem of relevant technologies and services.

In chapter 2 I will describe the strategy that Zipiko aimed to achieve, in terms of the users it was designed for, how these users were segmented, what needs it aimed to satisfy, and what objectives we had for the site.

Chapter 3 describes the design processes and methods used throughout the project, such as paper prototyping, software prototyping, user testing, user feedback, site metrics and split testing.

In chapter 4 I will describe the final design in terms of the choices made and solutions adopted. I will also analyze some of the challenges encountered when developing specifically for the mobile web, and how we addressed them. I will evaluate the choices made in the light of user test results and user feedback.

Finally, in chapter 5, I will discuss the possible reasons for the so far disappointing uptake in Zipiko usage, the lessons learned from the project, and what could be done differently in the future.

2 Context

This section outlines how the Zipiko project started, and in what context it developed. It will also discuss the relevant global ecosystem, in terms of the current technological landscape and the current trends in interaction design.

2.1 User experience

To better understand the breadth of the work done while designing Zipiko, and how the different parts fit together, it is useful to first define what user experience means, and what kinds of approaches and methods are used in order to develop it.

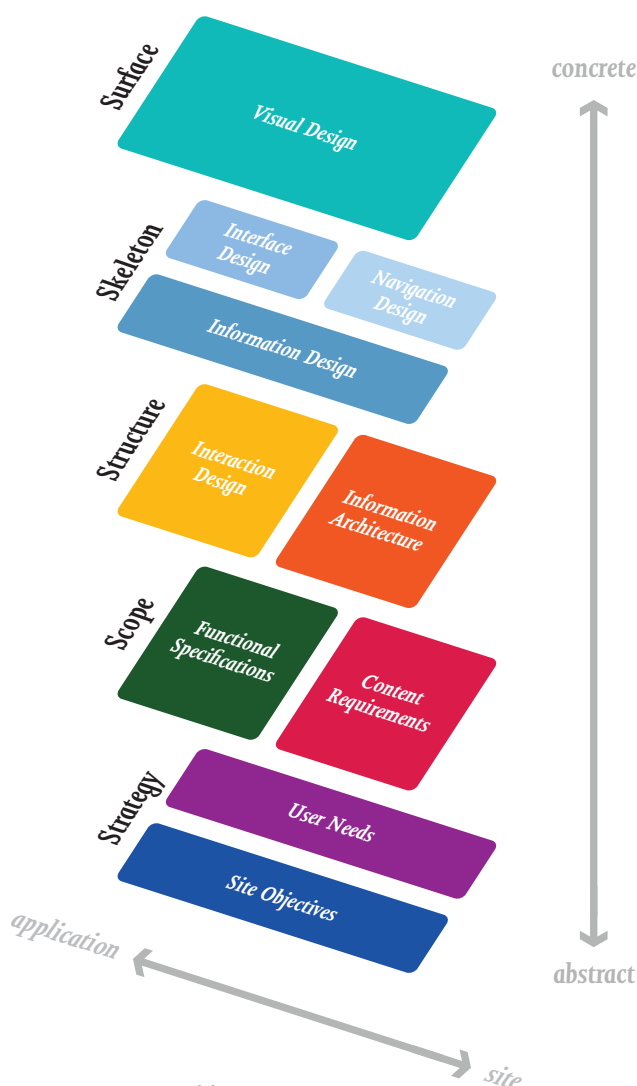
The user experience development process is all about ensuring that no aspect of the user's experience with your site happens without your conscious, explicit intent. This means taking into account every possibility of every action the user is likely to take and understanding the user's expectations at every step of the way through that process. (Garret 2002)

User experience is a broad term which encompasses any design activity which affects the users' experience while interacting with a device or system, such as a software application, web site, or web application. As such, user experience design is a superset of many digital design disciplines, such as interface design, interaction design, information design, information architecture, visual design, web design.

Garret (2002) explains how all these disciplines fit together to form the user experience design of a web site or application. Garret decomposes user experience design into four broad parts of varying abstraction: strategy, scope, structure, skeleton, surface.

The **strategy**, the most abstract, defines how the site will benefit the users and the site creators. *User needs* represent what the site must do for the people who use it. They are defined through user research and user segmentation. The *site objectives* represent what the site must achieve for the people who build it.

The **scope** involves the features of the site and the content it includes. In the case of a web site it will take the form of *content requirements* defining what information will be available and where it will come from. In the case of a web application, it will consist of *functional specifications*, the list of features the site will include in order to fulfil its strategy.



The **structure** defines how the content or features fit together. A web site will use *information architecture* to define how the content is structured. A web application will instead focus on the *interaction design*, or the actions the user can take at each step, how the system will behave in response to the user, and how the user moves from one step to the next.

The **skeleton** defines how these elements are laid out on the screen. It includes *information design*, which aims at presenting information so that people can understand it and use it, communicating the relationships and the relative importance of different pieces of information, and guiding the user from one part to the next. In the case of a web site, it also involves *navigation design*, which facilitates movement around the site, whereas a web application will involve *interface design*, the ways for users interact with the application and receive responses.

The **surface**, the most concrete aspect, involves the visual appearance of these elements. It includes such things as colors and typography.

I will refer to the elements of user experience design throughout the thesis as a guide to my analysis of the goals, the process and the results of the work.

2.2 The project

Zipiko started as a collaboration between students of the Media Lab Helsinki, then it evolved into a project of Helsinki startup Zipipop.

2.2.1 Zipipop



Zipipop is a Helsinki-based startup founded on the 23rd of July 2007 by Richard von Kaufmann, Helene Auramo, and Taro Morimoto. It became well-known for being one of the first Finnish companies to develop applications for Facebook, such as *Going for one?*, *Ecometer*, *Baby status diary*, *Friends Pad*. Facebook applications for customers, such as *What kind of dog are you?* (Laika) and *Lomajengi* (Finnmatkat), have helped fund the company, along with government grants.

The focus of the company has varied, but what have remained central to its culture and vision are the friendly, fun brand and the interest in the use of technology to improve everyday life. An example of this is the early work on the *Event organizer*, a web application meant to simplify all the communication and coordination involved in planning meetings and parties. (Zipipop 2008)

2.2.2 Going for One?



Mennäänkö yhdelle? (later *Going for one?*) is a Facebook application which Zipipop developed as a way to get together with fellow students in the school bar. It lets people specify where they plan to go out for drinks, and at which time. Anyone can then see their friends' plans and join if they want.

Going for one? rapidly gathered a following – about 10,000 users – in Finland. An English-language version was not as successful.

2.2.3 Inception

In May 2008, Zipipop creative director Richard von Kaufmann contacted me with the idea of developing a mobile version of *Going for one?* to enter in the Forum Nokia Mobile Innovation competition (Nokia 2008a).

The mobile aspect was sought to make it possible to organize social events – such as the drinks in *Going for one?* – at the last minute. Planning such events online is in fact problematic, as few people will check a web site often enough

to be alerted of the plans in time, especially after office hours when most events of this kind tend to happen. A mobile version would let people receive updates on the changing last-minute plans even after leaving the home or office.

Mobile devices make it possible for users to capture ideas at the point of inspiration (Li & Chandra 2008)

A consequence of the decision to go mobile was the necessity to abandon Facebook as a platform. At the time, it was not possible to access Facebook applications on the mobile web version of Facebook, nor was it possible for a stand-alone mobile site or application to integrate with Facebook's user accounts and data.

Through early discussions, the scope of the project expanded beyond just organizing drinks with friends. It seemed more fascinating and interesting to make such a system simple and generic enough for it to be used to organize other kinds of events, such as sports gatherings, dinners, parties, movies, cultural events and even meetings.

2.2.4 **Team**

Richard von Kaufmann

Co-founder and creative director of Zipipop and Media Lab student with a background in movie directing. He is the theoretical mind behind most of the Zipipop projects. His work on the concepts of *intention broadcasting* (von Kaufmann 2009) and the *pragmatic web* laid the foundations for Zipiko.

Diana De Sousa

Media Lab student and part-time employee of Zipipop, she worked on Zipiko as a project manager in the early stages and lead the user testing.

Tuomas Laitinen

Art Director at Zipipop and Media Lab student. He is responsible for the Zipipop brand, and contributed to the Zipiko visuals.

Taro Morimoto

Developer, co-founder and former CTO at Zipipop, he worked in the late stages of Zipiko as a front-end web developer.

Helene Auramo

Founder and CEO of Zipipop, Media Lab student, she is responsible for the marketing, and gave her input on various aspects of Zipiko.

Abhigyan Singh

Media Lab student with experience in usability, he participated in the early-stage of the Zipiko project.

Robert Aarts

Former Senior Architect for Web Services at Nokia, he worked in the late stages of Zipiko as a back-end web developer, and consulted on the business and marketing aspects of the project.

2.2.5 My role

I was the only person, together with Richard von Kaufmann, involved since the beginning of the project until now.

I started the development of Zipiko shortly after decision to work on it was made, and I have been the only developer until much later in the project. I was appointed CTO of Zipipop, and also acted as the lead interface designer for Zipiko.

2.2.6 Work environment

Initial work consisted of intensive brainstorming and paper prototyping sessions, organized by project manager Diana De Sousa. Meetings would take place either in the Media Lab Helsinki premises or in the Zipipop office in Arabus.

In-between meetings I would rapidly implement the ideas discussed and bring them up for review during the next meeting.

After the first phase of the process, development moved to the new Zipipop office. Work became full-time and the rest of the Zipipop team became gradually involved.



The open-space office environment encouraged frequent discussions and brainstorming about new potential ideas and directions for the project, while leaving less time for following through on previous decisions. This made it hard to keep the level of quality, polish and attention to detail high, but also ensured that we would not proceed too far in unpromising directions before considering alternative options.

2.3 Ecosystem

The development of Zipiko started in a period dominated by huge growth of social networking site Facebook (Shonfeld 2008) and great popularity of Facebook as a web application platform.

There are established online invitation and event organizing services, which focus on large events far in the future.

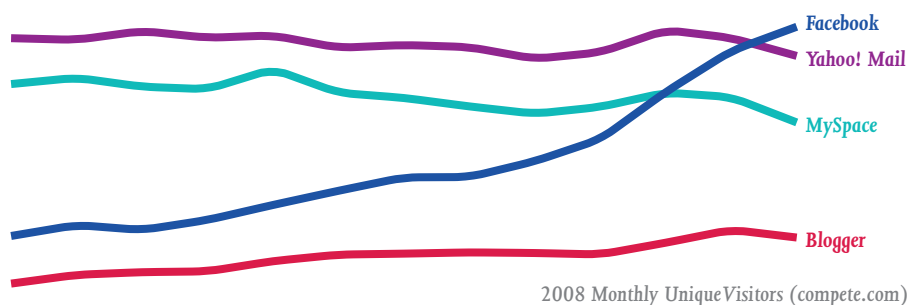
Many online services focused on the more spontaneous and last-minute aspects of coordination launched in recent years, due to the evolving mobile landscape and the looming promise of a succesful mobile web.

2.3.1 Related web services

Some popular and established sites are related to event organizing, or can be used to organize events.

Facebook

Facebook (2009) has become the number one destination on the web for social networking. It is the main social networking site in about 70% of the countries of the world, and growing rapidly in the remaining ones (Lorica 2008). It has recently overtaken Blogger as the number one social media site (Hendrickson 2009).



As more and more people start using Facebook, the network effect – the increasing utility of the service as more people use it (Katz & Shapiro 1985) – pushes the communication between people into Facebook as well.

It is starting to take away market share even from the largest and longest-lasting service on the Internet: email (Khan et al. 2008). As more time is spent on its site, there is very little time and attention left for external web sites. Facebook contributed in large part to the current richness of information and innovation. As Falkinger (2005) wrote, when there is a richness of information and innovation, people's attention becomes scarce and competition for attention becomes wasteful.

facebook Home Profile Friends Inbox Stefano J. Attardi Settings Logout

Create an Event

Step 1: Event Info Step 2: Customize Step 3: Guest List

Event Name (required):

Tagline (optional):

Host (required):

Event Type: Select Category: Select Type:

Description:

Start Time: January 26 at 1:00 pm

End Time: January 26 at 4:00 pm

Location (required):

Street:

City/Town:

Phone:

Email:

Create Event Cancel

Facebook © 2009 English (US) About Advertising Developers Jobs Terms Find



facebook Home Profile Friends Inbox Stefano J. Attardi Settings Logout

Customize Test

Step 1: Event Info Step 2: Customize Step 3: Guest List Finish and View

Your event has been created.

Current Picture

Upload Picture

You can upload a JPG, GIF or PNG file.

Choose File no file selected

I certify that I have the right to distribute this picture and that it does not violate the Terms of Use.

Upload Picture

File size limit 4 MB. If your upload does not work, try a smaller picture.

Options:

- ☒ Let guests know they can bring friends to the event.
- ☒ Show the guest list.
- ☐ Hide guests who are not attending.
- ☒ Enable the wall.
- ☒ Enable photos.
- ☐ Allow all members to upload photos.
- ☐ Only allow admins to upload photos.
- ☒ Enable videos.
- ☐ Allow all members to upload videos.
- ☐ Only allow admins to upload videos.
- ☒ Enable posted items.
- ☐ Allow all members to post items.
- ☐ Only allow admins to post items.

Access:

- ☒ This event is open. People can add themselves to the guest list and invite others to the event. Anyone can see the event information and content.
- ☐ This event is closed. Only people you invite will be on the guest list. People can request invitations. Anyone can see the event time and description, but only people you invite can see the other information and content.
- ☐ This event is secret. The event will not appear in search results. Only people you invite can see the event information and content.

Publicize: ☐ Show this event in search results.

Save Skip

Facebook © 2009 English (US) About Advertising Developers Jobs Terms Find



facebook Home Profile Friends Inbox Stefano J. Attardi Settings Logout

Customize Test

Step 1: Event Info Step 2: Customize Step 3: Guest List Finish and View

Your event has been created.

Current Picture

Upload Picture

You can upload a JPG, GIF or PNG file.

Choose File no file selected

I certify that I have the right to distribute this picture and that it does not violate the Terms of Use.

Upload Picture

File size limit 4 MB. If your upload does not work, try a smaller picture.

Options:

- ☒ Let guests know they can bring friends to the event.
- ☒ Show the guest list.
- ☐ Hide guests who are not attending.
- ☒ Enable the wall.
- ☒ Enable photos.
- ☐ Allow all members to upload photos.
- ☐ Only allow admins to upload photos.
- ☒ Enable videos.
- ☐ Allow all members to upload videos.
- ☐ Only allow admins to upload videos.
- ☒ Enable posted items.

Do you want to publish this story to your Profile?

Choose story size: Full Short One Line

Test

When: 1:00PM Monday, January 26th

Where: My place

☐ Always do this for Events

Publish No, Thanks

Publicize: ☐ Show this event in search results.

Save Skip

Facebook © 2009 English (US) About Advertising Developers Jobs Terms Find



facebook Home Profile Friends Inbox Stefano J. Attardi Settings Logout

Invite people to Test

Step 1: Event Info Step 2: Customize Step 3: Guest List Finish and View

Show: Attending

Showing 1 out of 1 guests

Stefano J. Attardi Remove

Invite Friends:

- ☐ Adrian Paulsen
- ☐ Antero Heikkala
- ☐ Antonio Cavedoni
- ☐ Arlon Stok
- ☐ Barbara Franz
- ☐ Benjamin Nikolaus
- ☐ Nepomuk Schulz
- ☐ Carina Noethe
- ☐ Cilia A
- ☐ Daniel Wester

Invite People who are not on Facebook via Email: Enter emails separated by commas

Import email addresses from your Yahoo!, Hotmail, AOL, Gmail or MSN address book.

Add

Promote Event with an Ad

Some of the users we interviewed even started to consider Facebook as a separate entity from the rest of the web. Even though they spend considerable amounts of time using Facebook, they would think twice before even considering visiting, let alone registering for, another service. People patiently build up their address book within Facebook, and are reluctant to do so again anywhere else.

For all these reasons, Facebook cannot be ignored when developing a service with social networking elements. Any new site in this space will either have to integrate with Facebook or compete with it, even if only in terms of attention.

The four steps needed to create a Facebook Event.

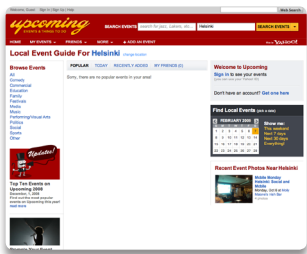
Facebook Events

Given the strong position that Facebook holds in the online social communication space, a natural competitor for Zipiko is Facebook’s own feature for organizing social gatherings: Facebook Events.

Creating an event in Facebook is a four-step process which involves filling a form with 12 fields (of which 6 are required), reviewing and setting 15 options, and picking the friends to invite from the unorganized list of all the Facebook contacts displayed in a tiny scrolling window.

Despite the clumsiness of the interface, Facebook Events is the natural choice for a lot of people simply because their friends are already using Facebook.

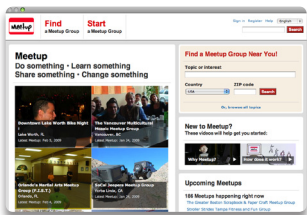
Yahoo! Upcoming



Yahoo! Upcoming (Upcoming 2009) focuses on listing public events in a local area, such as concerts and exhibitions.

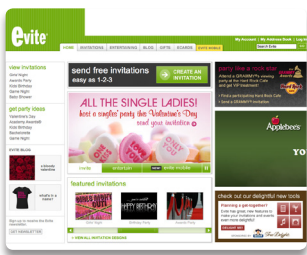
It is possible to create private invite-only events, and see what your friends are planning. However, all events need to take place in a known public venue. Currently, Upcoming cannot be used to meet in the local bar, in a public place, or at your own house.

Meetup



Meetup (2009) focuses on groups centered around a common interest who need to arrange gatherings. All groups are public, and an event can only be created for a specific group. It is not possible, therefore, to use Meetup to organize social gatherings with friends.

Evite



Evite (2009) is the most popular web site to send digital invitations for parties and other meetings. The focus is purely on creating, designing and sending the invitation itself. The complex process involves selecting and customizing a design to the smallest detail. As such, Evite is not suited for spontaneous informal gatherings.

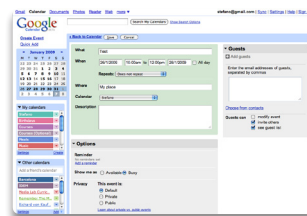
It cannot be used as a shared social calendar either, since there is no way to view any events besides the ones we’ve created.

Time Magazine (2007) ranked it as one of the 5 worst web sites: “Evite’s fill-in-the-blanks approach feels clumsy and dated”.

Google Calendar

Google Calendar (2009) is mainly a private calendar application. However, its invitation and sharing features make it suitable for organizing occasional events, or sharing a personal calendar with friends.

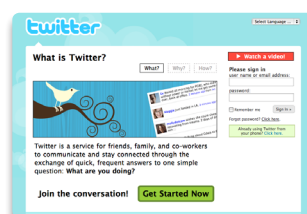
However, both of these use cases are not central to the service, and it shows. For example, there is no way to see friends' social plans, and it is not possible to share single events in a way that makes them visible to all friends who are interested. Sharing events requires manually publishing and importing each of your friends' calendars.



Twitter

Twitter (2009) is gaining popularity as an online social tool for sharing brief messages with friends. The purpose of these messages is generally to announce your current location or activity. However, some also use Twitter as a way to announce future plans and inform others in case they want to join.

As it is not designed for this purpose, however, Twitter lacks many functions that would support this use case, such as a way to invite specific people, a way to reply to suggestions, or a way to list upcoming events in chronological order.



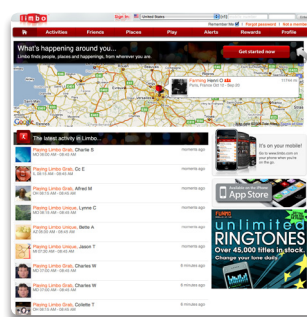
2.3.2 Direct competitors

Many smaller sites launched in recent years aim to facilitate spontaneous encounters with friends, through slightly different approaches. Some focus on mobile platforms to increase opportunities for contact, others aim to simplify sharing and planning events.

Limbo

With 102,000 monthly visitors, Limbo (2009) is currently the most successful of the competitors. It is also one of the oldest, as it was launched in October 2005. It is mainly a location-aware social network, as the emphasis is on sharing the present location and activity. As such, it is similar to Twitter. Like Twitter, it lacks the ability to respond to activities, invite specific people, and coordinate meetings. Compared to Twitter, it is also more restrictive. For example, the activity must be selected among one of those preset by the system.

It is available on high-end mobile devices, through the mobile web site or through an iPhone application, but it lacks SMS features.



Signing up is required to use any part of the service, and it requires “dealing with” (Gruber 2007) 14 interface elements. Specifying a present or future activity involves using up to 20 or more elements.

Center'd



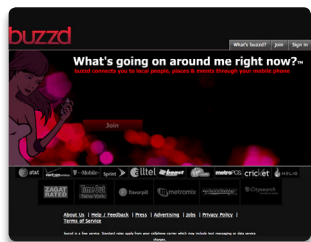
Center'd (2009) is one of the newest sites in this space – it launched in June 2008 – but it is already the second most visited, with 75,000 monthly visitors.

Its emphasis is on planning events, and finding the best places for events. As such, it is a mix between an event planner and a place directory like Yelp.com.

It has many of the features you would expect from a social event planning site, such as being able to invite people by email and adding friends in order to view what they are planning. It also lets you browse public events by location. It has no mobile features (mobile web site or SMS integration).

It is not suitable as an event planner for small, frequent events. Creating the first event requires signing up (12 steps), then dealing with 26 interface elements. After creating the first event, my account caused the site to produce an error on every page load, making it impossible for me to review the site further.

Buzzd



Buzzd (2009), launched in March 2008, has reached 8,700 monthly visitors. It appears to be similar in scope to Limbo, allowing people to share their location on the go. It puts slightly more emphasis on public events in open venues, such as those typically found on Yahoo! Upcoming. It also appears to be a mobile-only site. After signing in (20 steps) I was presented with an obscure bare-bones interface crammed inside the screen of a fake Blackberry phone. I could not figure out how to enter an activity or event.

Renkoo Social Planner



Renkoo (2009) launched its Social Planner in June 2005. It is therefore the oldest site in the space. Since then, however, the company has launched many other applications, and the Social Planner is no longer actively developed. The overall reach of the site is 6,900 monthly visitors.

The interface is dated and not up to modern-day standards, but the planner has all the basic features: email invites, importing contacts from webmail services, calendar software integration,

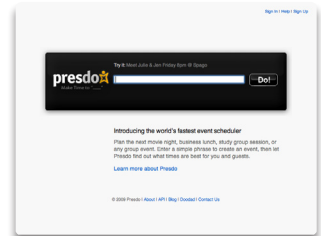
ability to view friends' events. It has no mobile features, and creating an event is complex. It requires signing up (8 steps), then dealing with 24 interface elements. Joining events and replying to invites is easy, involving only 2 elements.

Presdo

Presdo (2009), is one of the newest sites, launched in April 2008. It is also among the least successful, with only 3,500 monthly visitors, despite a high amount of press and attention gathered at launch. Presdo was started by Eric Ly, one of the co-founders of LinkedIn.

Its interface is by far the simplest, requiring only 1 step to create an event (typing its description), and 2 steps to respond to an invite and join. Signing up is optional in order to create an event, and requires only 6 steps.

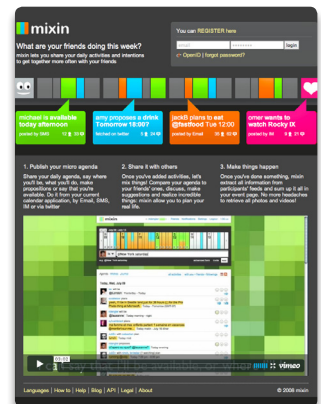
However, Presdo is perhaps too simple for many purposes. It lacks many useful features, most obviously a way to discover any event besides the ones you've created or have been invited to. There is no list of events that friends have planned, as the service has no knowledge of who your friends are.



Mixin

Mixin (2009), is the newest and the least successful site by far, having reached 600 monthly visitors since its launch in July 2008. It is also the most interesting.

It has many useful features, such as the ability to see friends' events and local events, groups, calendar integration, Facebook integration, RSS feeds, contacts import, and ability to create events via SMS. Despite the power, the interface is pleasant, innovative, and relatively simple. Creating an event can take as little as 1 step. Signing up is required and takes 11 steps.



2.3.3 Trends

Mobile web

Mobile phones are becoming more and more ubiquitous, and their capabilities are rapidly increasing.

There are currently about 3.2 billion mobile subscribers in the world, and that number is expected to grow by at least a billion in the next few years. (Rubin 2008)

The statistics clearly indicates that mobile phones are already the most pervasive computing platform. Mobile phones have now become the device of choice for people to keep in touch with family members, friends, and business partners. (Li & Chandra 2008)

Network coverage is expanding and enabling faster data speeds. The mobile web is widely believed to be poised for rapid growth.

As a result of the improving technology and increased availability of unlimited data packages from ISPs, we think the growth rate of mobile Internet usage will accelerate in the future. (Khan et al., 2008)

With approximately 40M Americans now actively using mobile Internet service, we think the market has reached enough scale to begin to be attractive to advertisers. (Khan et al., 2008)

Li & Chandra (2008), of the Nokia Research Center, argue that the time has already come for development of social services to target mobile devices, and specifically using the web as a platform.

We maintain that the next-generation collaboration technologies should be built on mobile phones and provided as Web-based services. (Li & Chandra 2008)

Browsers

Innovation in the browser space has started to accelerate since Apple adopted WebKit as the preferred browser technology for its own browser, Safari. Since then, development of WebKit has proceeded rapidly, adopting new standards defined by the World Wide Web Consortium and the Web Hypertext Applications Working Group. Google also adopted and improved the WebKit engine for use in its own browser, Google Chrome. Two other major browser engines, Gecko (Firefox) and Presto (Opera), are closely following.

Advanced browsers have started to appear on mobile devices as well. Nokia uses WebKit on the high-end Series 60 devices, and is gradually introducing it to mainstream Series 40 devices (Nokia 2008b). Google's new mobile phone platform, Google Android, also uses WebKit.

An advanced and rapidly evolving browser engine is available in a wide range of platforms, in many browsers, and even on the majority of smart phones.

Due to their wide deployment and standardization efforts, [...] Web browsers provide a reasonable level of abstraction to overcome engineering barriers, such as fragmented and closed platforms. (Li & Chandra 2008)

This provides a more uniform platform on which to develop while targeting many different kinds of devices, and it gives unprecedented opportunities to

create rich interactive web sites and applications targeting both browsers and mobile phones.

Standard Web 2.0 techniques such as Ajax make it possible today to develop Web-based applications (e.g., Google Mail, Calendar, Map, and Docs) as interactive as native applications. (Li & Chandra 2008)

Lagging behind is, unfortunately, the most widespread browser, Microsoft Internet Explorer. However, this might change with the imminent release of version 8.

2.3.4 Devices

iPhone



Apple's iPhone, "probably the most recognizable of phones" (Khan et al., 2008), "is pioneering a breakthrough in mobile usability" (Nielsen 2009). After being released in July 2007, it initially gave a boost to the development and popularity of web applications.

The iPhone increased awareness of mobile Internet capabilities. With a handset geared toward improving mobile Internet use, consumers significantly increased their use of mobile Internet services. Nielsen Mobile data shows that 82% of iPhone users access the mobile Internet, making them 5 [times] as likely to do so as the average mobile user. (Khan et al., 2008)

The increased usability of the mobile browser prompted renown usability expert Jakob Nielsen (2009) to call it "the first mobile Internet device worth criticizing."

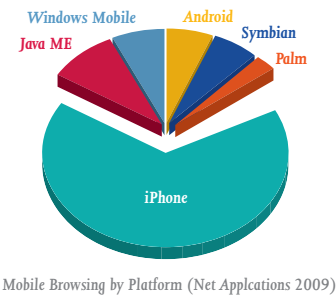
Additionally, the iPhone was the first phone in many countries – e.g. the UK (MacLeod 2006) – to come with a flat-rate data plan, probably a result of the pressures on operators by Apple itself, as the iPhone was designed to rely on always-on and relatively high-bandwidth data connectivity.

The lack of a Software Development Kit (SDK) – a tool which would have enabled third-party developers to write native applications to extend the capabilities of the phone – was a big push towards the development of mobile web applications. Steve Jobs himself, during a speech on July 12th 2007, promoted the use of web applications as first-class applications for the iPhone.

Development of Zipiko started in this context. However, some months later, Apple released the iPhone Software Development Kit (March 2008) and the App Store (July 2008). Suddenly developers had both a great way to develop native iPhone applications, and a great way to market and sell them, through

the iTunes App Store. This change represented a big reversal of priorities and expectations for the future of mobile development. Successful applications are now expected to be released as native iPhone applications, leveraging advanced features such as geo-location, accelerometer, access to contacts and camera, sophisticated graphics and animation. Mobile web applications are now second-class citizens on the iPhone.

Back when the iPhone first launched and the App Store was still a twinkle in Apple’s eye, the only way to get your goods onto the platform was to develop them as an iPhone-optimized web page – otherwise known as an iPhone Web App. Unable to make use of much of iPhone’s functionality (like the GPS, camera, etc.), Web Apps were quickly considered the inferior option when Apple unshackled the iPhone SDK, opening the doors for the stand-alone Objective-C apps which have since flooded through the App Store. It was great news for Objective-C developers and consumers looking for rich applications – but not so much for those who’d grown accustomed to developing for the web. (Kumparak 2009)



The web is no longer the primary development platform on the device that is still the most frequently used to access the web (Khan et al., 2008) and which amounts for two thirds of mobile web traffic (Net Applications 2009). This is not an encouraging sign for the future of the mobile web applications. It remains to be seen whether the cross-platform nature of mobile web applications will raise the importance they will have in the fu-

ture, as more sophisticated smart-phones, such as those based on Google Android, enter the market.

When it comes to mobile web sites in general, many iPhone owners seem to prefer accessing full versions of web sites through the mobile version of Safari (Hopkins 2008), as the browser is perfectly capable of displaying them. Small adjustments to make text and buttons large enough to read and click seem to suffice.

Nokia



Nokia devices are the most common phones worldwide, however, they are rarely used to access the Internet. Lower-end phones are based on the Series 40 platform, while higher-end devices use the more advanced Series 60 platform based on Symbian OS. Higher-end devices include an advanced browser which shares the same technology as the iPhone’s browser (WebKit). Newer Series 40 devices also include the same browser (Nokia 2008b).

Android



Android is a new platform for mobile devices, originally developed by Google, which focuses on open extensibility by third party developers. Despite being only recently introduced, Android mobile traffic already surpassed that of Nokia devices (Net Applications 2009).

Android's browser is also based on the same technology as the iPhone.

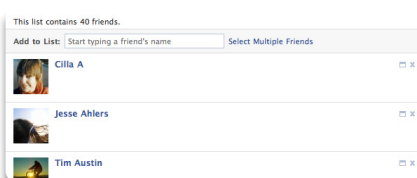
2.3.5 Interfaces

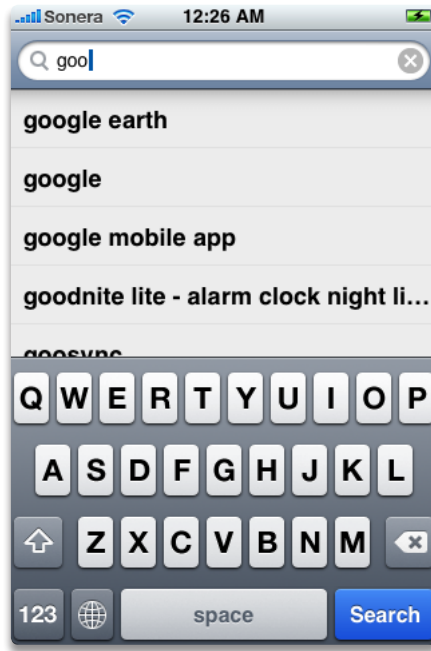
Some interface elements are becoming standard and quickly spreading across products and services. Neil (2008) catalogued the most common interface elements in use today:



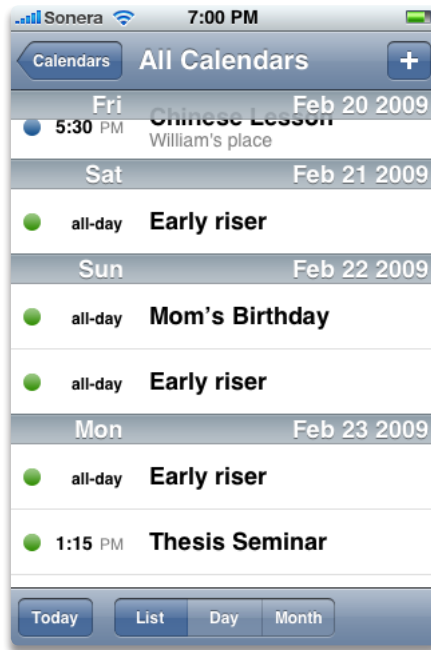
Among these is *autocomplete*, a pattern that started with Google Autosuggest and is now present in Facebook as well as throughout iPhone's interface.

Instead of having to rely on memory entirely, autocomplete helps users to locate the desired item in less steps than would be needed to enter the entire label. (Wellie 2008)





Another interface pattern which quickly established itself, especially for iPhone applications and web sites, is the vertical list of clickable elements, separated by thin gray lines, and grouped by small darker stripes for headers.



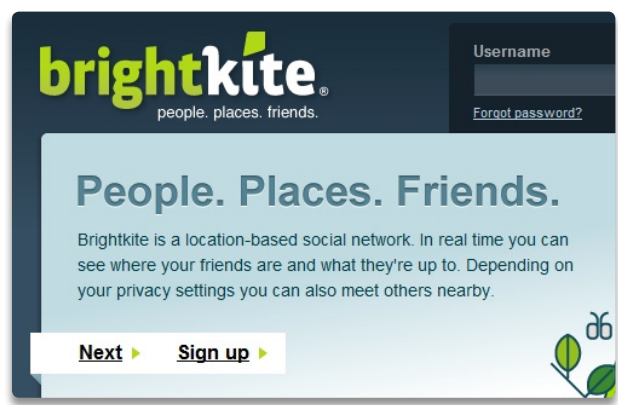
This trend is now often seen in mobile versions of popular web sites, such as Google, Facebook, Washington Post, Digg, Twitter, Bank of America (Snell 2009).

Visual Trends

Some visual trends have established themselves among the newest web sites and web applications. Many of these trends were made popular by Apple, starting a couple of years ago, with the rising popularity of the Mac, and reinforced over the past year due to the launch of the iPhone.

The iPhone set a much higher standard in the quality of mobile interfaces. A bright high-resolution screen allows for high-quality typography and, coupled with the advanced graphics hardware, enables subtle and sophisticated visual effects such as shadows, gradients, rounded corners, and animations.

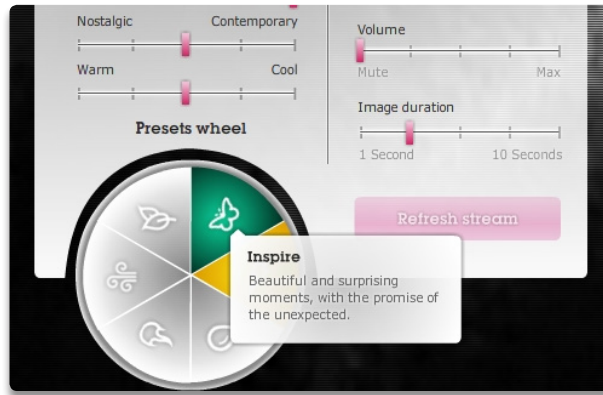
Among these Apple-inspired trends is the use of drop shadows, in particular reversed shadows on text which give the text an embossed look.



A second trend is the use of gradients, often employed to give a solid look to buttons and toolbars.



Finally, rounded corners give a softer, more comfortable look to otherwise rigid and sterile interfaces.



These trends are being reinforced by the introduction in the draft of the next version of HTML – and in the implementation of many major browser engines, starting with Apple’s own WebKit – of specific features to enable the display of these visual effects.

2.3.6 State of the economy

During the course of the project, the world economy was hit by the worst economic crisis since 1929 (Mujagic 2008). This affected the current web and mobile ecosystem as well. In particular, revenue models have changed radically. Advertising is no longer believed to be a viable path to profitability for web services.

Experimental forms of advertising, including mobile, will suffer the most in the current economic downturn (Khan et al., 2008)

It is in this context that we set out to develop Zipiko. The following sections will make it clear how the working environment and the global ecosystem just described affected the work and the outcome.

3 Strategy

This section describes the goals of the project. It outlines the users it was designed for, and how they are segmented; which user needs it set out to address, and which objectives it sought to achieve for the creators of the site.

Users

When developing a digital system, it is crucial to understand the people who are meant to use it, both in terms of their current habits, needs and expectations, and in terms of their feelings and emotions. An intimate understanding makes it possible to innovate by finding new and better ways to address the original needs, and even by discovering previously unexpressed needs to address.

Zipiko was developed primarily with our personal needs in mind. This is now widely believed (Yegge 2008; Bray 2008; Fried et al., 2005; Graham 2009) to be the best way to understand the needs of the users and develop a product that meets them.

Only build stuff for yourself. That's the Golden Rule of Building Stuff. (Yegge 2008)

A great way to build software is to start out by solving your own problems. You'll be the target audience and you'll know what's important and what's not. That gives you a great head start on delivering a breakout product. (Fried et al., 2005)

There's only one person in the world whose needs and problems you really understand and whom you know exactly how to satisfy: that would be you. So build something that you use all the time, and, unless you're really weird and different from everyone else, you've got a potential winner. (Bray 2008)

When you solve your own problem, you create a tool that you're passionate about. And passion is key. Passion means you'll truly use it and care about it. And that's the best way to get others to feel passionate about it too. (Fried et al., 2005)

Designing for ourselves was a good starting point towards achieving optimal understanding of the users. While we based our original design choices on our own needs, we later started involving other groups of people in our research, to prevent our bias – being too familiar with the service – to cloud our judgment.

Our most dedicated early adopters came from our circles of friends. Frequent conversations with them helped expand and crystallize our vision for the possible use cases for Zipiko.

The outcome of this informal research and conversation was a set of primary user groups, representative of the uses we and our friends were making of the service. To this we added some user groups representing use cases which we wanted to support in the future. From that point on, these sets of users were the guiding star for our design decisions.

3.1.1 User segmentation

Honeybees

Honeybees are social people, active organizers of events who like to be recognized for their efforts. They often call friends to find out what their plans are and to invite them to join their own activities. Occasionally, they use SMS for larger events where calling everyone would not be practical.

Followers

Followers are more introvert people who nonetheless enjoy meeting friends. However, they are rarely the ones initiating or suggesting plans. They often use Facebook or send SMS messages to find out what their friends are planning.

Sharers

Similar to honeybees, sharers are active people who enjoy meeting up with friends and have ideas when and where to do it. However, they are not as eager to frequently call people to invite them, often for fear of being perceived as bothersome. They like to meet but don't want to take the effort and responsibility of organizing the event and convincing people to join.

Sports buddies

Sports buddies enjoy playing team sports occasionally, and they need a way to coordinate with friends who are willing to join, and find times that are suitable for them as well. They currently use a mix of SMS, email and calling. Scheduling an event often takes repeated exchanges until a time can be agreed on.

Sports buddies would benefit from ways to discover other people who are also interested, from within the circle of friends, or even outside of it.

Enthusiast groups

Enthusiasts are larger groups of people with a shared interest (sports teams, poetry clubs...) that meet fairly regularly. Their problem is to coordinate the meetings: announcing time and location and gathering replies from the attendees to make sure there are enough people available.

On-line gamers and callers

This group of people organizes events that take place online, rather than in a physical location. They need to synchronize with remote people for activities

such as conference calls or online games. They have the unique problem of needing to agree on times across different time zones.

Sellers

Sellers represent people who need to schedule meetings for business purposes. Meetings within companies are often scheduled with existing tools and calendars. However there are certain positions, such as salesmen and PR people, who often need ways to schedule meetings across companies. Email is currently the standard tool.

3.2 User needs

Zipiko aimed to address various use cases, some of these common to all user groups, others more specific to certain ones.

3.2.1 Intention broadcasting

The primary need that Zipiko set off to address is what we call *intention broadcasting* (von Kaufmann 2009). Long before there is a plan to meet somewhere for a certain purpose, or an event that needs to be organized, we have an *intention*, a wish to go somewhere or do something. This intention often comes before we know who we wish to do the activity with, or who is available, or even if the activity will be shared or individual.

A tool that lets people share (*broadcast*) their intention at this earliest stage would create many opportunities for these intentions to materialize into actual plans.

By raising the awareness of friends' intentions, we increase the potential for spontaneous encounters, and we also make it much easier to find out who might be interested or available for certain activities at certain times, and to coordinate the actual meeting.

3.2.2 Spontaneous planning

A natural complement for a tool which lets people publish their wishes to meet are features that enable other people to respond and coordinate the actual meeting.

Zipiko should let people reply to plans saying they will join, and also let people specify the time they will be coming, in case they are late, or early. By extension, people should be able to cancel their plan and notify everyone else of their change of heart.

All this should happen rapidly with a minimum number of exchanges reaching people in a timely manner, to avoid unpleasant waits or failed meetings.

3.2.3 Shared social calendar

A secondary purpose for Zipiko evolved during the early stages of prototyping. We started using Zipiko as a personal calendar: a tool to record all the coming events and be reminded about them through SMS. Its sharing features make it easy to invite people to join your own plans, or even just to be aware of your friends' activities.

3.2.4 **Public events calendar**

Another use of Zipiko is to publish listings of public events, such as the screenings of a film festival, or concerts in bars. Zipiko should not only offer a single place to keep updated on all the events you're interested in, it should also let you know which events any of your friends are planning to attend. This might help making a decision whether to go or not.

3.2.5 **Invites**

Zipiko should let people send more traditional direct invitations, for those occasions where someone wishes to notify a specific person or group of the plan and receive their response.

3.2.6 **Reminders**

Zipiko should send reminders to all the people who joined an event. This is to prevent them from forgetting an appointment, but also to prevent other people from having to wait unnecessarily.

We take the chance of sending the reminder to also send a basic summary of the information about the event, such as time, location and the list of people who are planning to go.

We also ask people to confirm their intention to go, and to cancel through the system in case they change their mind, so that the Zipiko can notify other people of the last-minute cancellation. The purpose of this is to increase the perceived reliability of events created through Zipiko. We want to ensure that events shown in Zipiko are events that are actually happening, so that people who join can expect with some confidence to meet the people who are listed as going.

3.3 **Site objectives**

Site objectives (Garret 2002) are the goals that the site needs to address as set by the site creators.

3.3.1 **Revenue model**

In order to create a sustainable and reliable service, Zipiko should be able to generate enough revenue to at least cover its running costs.

Ideally, this would be an unobtrusive advertising-based model, similar to what Google has done with AdWords on its search results.

3.3.2 **Pervasive interface**

For a service like Zipiko to work, it is important for it to be as widely available as possible. People should not be required to be at home in front of a computer to create an event. Even more importantly, nobody should be required to have access to an Internet device to receive and respond to invites. Invites and reminders will therefore be sent via SMS.

Some of these goals were clear to us from the start, some evolved later through our own experimentation with the system or through conversation with our users. Indeed, the original goals deeply shaped the overall service, whereas the later ideas only affected later, smaller, choices. Nevertheless, each of these user needs and objectives were instrumental in shaping the work and consequently, the final results. The following sections will explore these links in more detail.

Process

This section describes how the work progressed, and what techniques and methods were used to guide our design decisions.

4.1 **Timeline**

4.1.1 **Start**

Towards the end of February 2008, Richard von Kaufmann approached me with the idea of developing a mobile version of Going for one? for the Forum Nokia Mobile Innovation competition (Nokia 2008a). We were joined by two other Media Lab students, Diana De Sousa and Abhigyan Singh. After long brainstorming sessions, the name settled on Joinups. mobi.

4.1.2 **Forum Nokia Mobile Innovation competition**

On April 18th we submitted our prototype and documentation material to the Forum Nokia Mobile Innovation competition (Nokia 2008a). We did not win.

The project was taken over by Zipipop. I joined the company to continue my work as lead developer and interface designer. Zipipop art director Tuomas Laitinen started contributing to the visuals. Diana continued her work as project manager on a part-time basis for two months.

Our next deadline was going to be the Mobile 2.0 Europe conference, a context in which we hoped to get the attention of press, users, collaborators and investors.

4.1.3 **Mobile 2.0 Europe in Barcelona**

In time for the Mobile 2.0 Europe conference (Appelquist et al., 2008a), we renamed the service to Zipiko, due to issues with the original name which came up during user testing.

On July 4th we presented at the conference and launched the public beta of Zipiko, with the core features already in place. Our presentation was



well-received. Zipipop was awarded the best early-stage startup award. As such, we were invited to present again at the next Mobile 2.0 conference, in San Francisco.

To better prepare for our next deadline, Zipipop CTO Taro Morimoto joined the project as a developer. Robert Aarts also joined the team, working both as a developer and as an advisor for the business strategy.

4.1.4 **Mobile 2.0 in San Francisco**

By November 3rd, in time for the Mobile 2.0 conference in San Francisco (Appelquist et al., 2008b), we had added many new features, such as groups, email support, and a gradual sign-up to allow people to start using the service without asking them to register first.

We presented Zipiko again, but this time in a very different climate. The economic crisis had just started. With venture capital and advertising money drying up, services relying on advertisement as their primary business model, or aiming for significant growth, were received with skepticism. Reception of Zipiko was underwhelming.

4.1.5 **Turning point**

For two months after the disappointing trip to San Francisco in a bad economic climate, the team tried to recover energy and regain motivation needed to bring Zipiko to the next step.

However, by the end of January 2009, usage of Zipiko was at an all-time low. Development was stagnating and resources were drying up. The state of the economy meant that funding would be hard to come by.

Two Zipipop employees left for another startup, including Robert Aarts, whose experience and authority had previously breathed energy into the project.

Zipipop decided to put Zipiko aside to focus on projects with more immediate revenue potentials.

4.2

Design process

The design process used is a combination of different techniques which complemented themselves. The process was far from linear. For example, paper prototypes were used to guide the development of software prototypes, the outcome of which would inform new paper prototypes aiming to discover new approaches. In a similar way, digital mockups were used to guide the software development, and were also evolved and updated based on the changing live site.

In general, however, as the project progressed, coarse exploration techniques gave way to more precise refining methods, as we aimed to apply the most appropriate technique in our toolbox for each design step. Early on, paper prototypes were most effective to bring a fuzzy concept into a tangible artefact, whereas towards the end, quick software prototypes combined with user testing were most effective to test variations to existing interfaces.



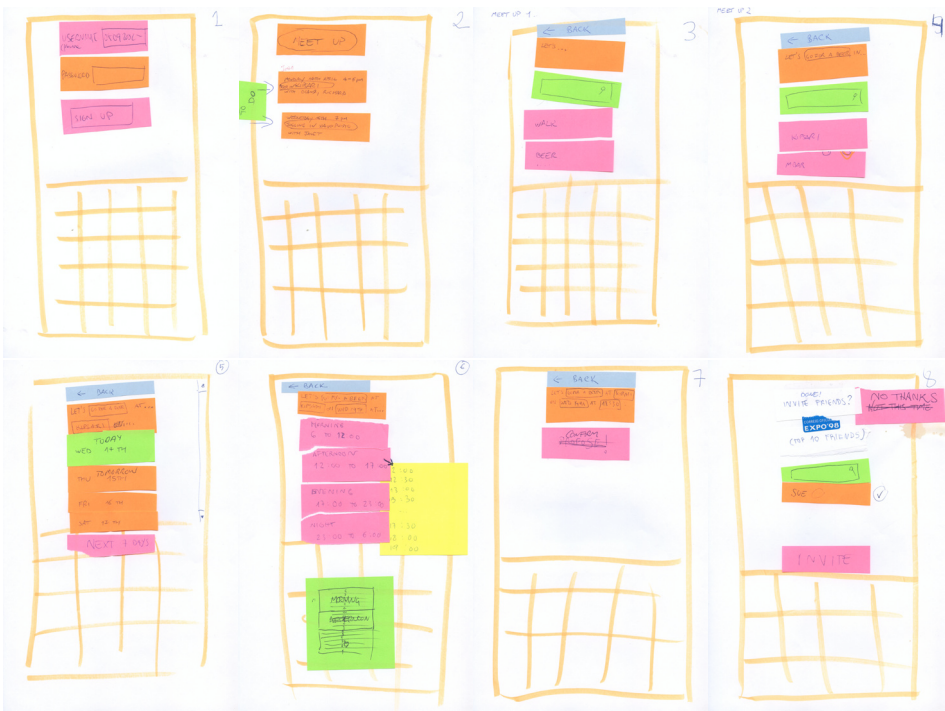
4.2.1

Paper prototyping

The first phase in the interface design for Zipiko was based on paper prototyping.

Paper prototyping is a variation of usability testing where representative users perform realistic tasks by interacting with a paper version of the interface that is manipulated by a person ‘playing computer,’ who doesn’t explain how the interface is intended to work. (Snyder 2003)

In this project, we used rough paper mockups as the outcome of the brainstorming sessions, as a way to keep the whole team focused on a shared vision of the interface. This is similar to the process used by 37signals: “first [...] some quick and simple paper sketches, then directly into HTML” (Fried 2005).



The tangible nature of the mockup allowed many ideas and revisions to be rapidly shared and evaluated by all the members of the team.

Unlike paragraphs of text that are open to alternate interpretations, interface designs are common ground. (Fried 2005)

Among some teams there are disagreements about the future direction of a project. You can use a prototype to prove that an idea or new approach has merit or value. A prototype can help illustrate that an idea works, express its qualities in a visual and interactive way, and/or motivate team members to think about the problem from another perspective. (Berkun 2000)

4.2.2 Software prototyping

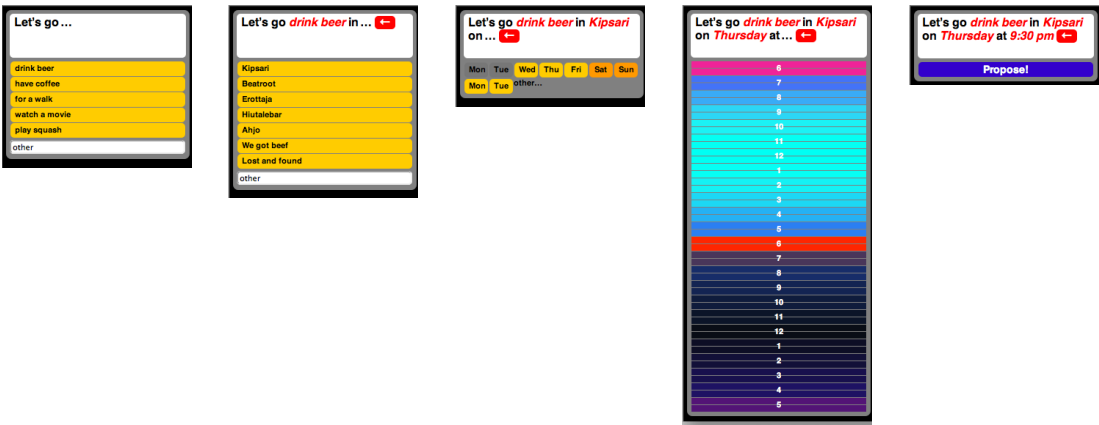
Instead of refining the prototypes and using them for user testing, we moved directly to the next phase: software prototyping. Provided that the digital prototype can be built rapidly and iterated upon, this practice is now widely recommended. According to Paul Buchheit (2009), creator of Gmail, AdSense, and FriendFeed, “you should consider spending less time talking, and more time prototyping”, as prototypes can clearly reveal strengths and weaknesses of ideas which could otherwise go unnoticed until much later in the process. 37signals (Fried et al., 2008) recommend not to put too much effort into producing deliverables that cannot be used in the final product.

The sooner you can get away from airy abstractions, and down to the nuts and bolts of building the damn thing, the better off you – and your project – will be. (Atwood 2009)

After each paper prototyping session, I would build or update a corresponding digital prototype of the interface. Experiments and tests were done on the prototype, before going back to the paper prototype to brainstorm new ideas.

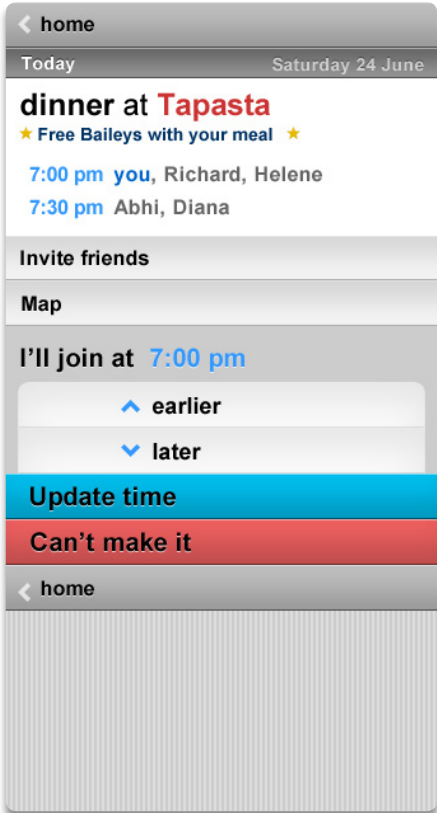
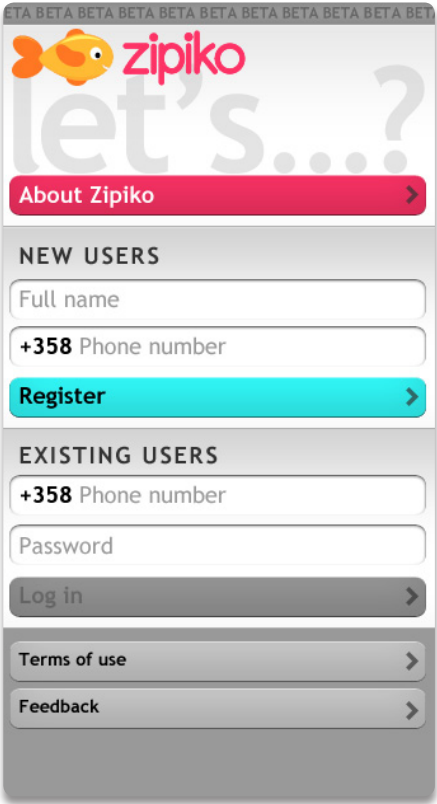
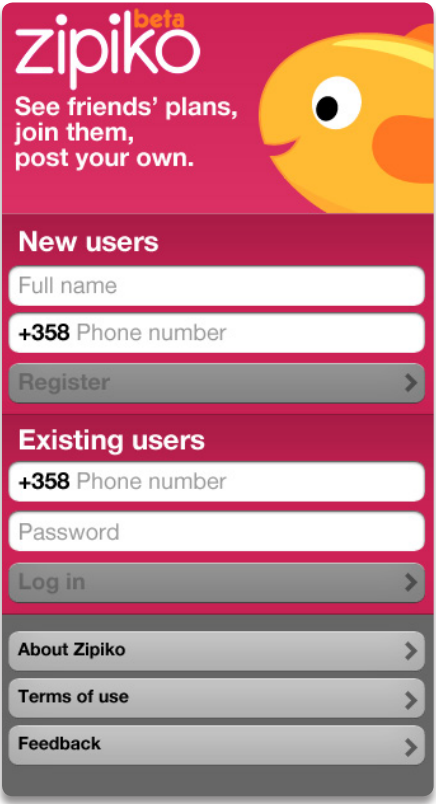
Give the dev team your very first sketches and let them get started. [...] Every day, give them the updated drawings, always with the proviso that everything is subject to change. Sometimes that will require the team to build something over again, but that’s rarely very expensive, because the second time is so much more efficient, thanks to the knowledge gained the first time through. (Ries 2009)

The following images show the first interactive prototype for the event creation interface, which was developed in under one day to test the ideas discussed while working on the paper prototype.



4.2.3 Mockups

Interface mockups, static images which represent how certain pages should look, were used occasionally to guide the visual design of Zipiko. They served as goals towards which we aimed, gradually approaching them through successive revisions.



4.2.4 User testing

User testing consists of observing people as they experience the product or service for the first time and try to complete a set of tasks (Krug 2000). We carried out regular user tests throughout the whole project, starting with the early prototypes, up to the various iteration of the live site.

Test subjects were presented the site for the first time and, given minimal information about it, were asked to perform the following set of tasks: signing up for the service, viewing and joining friends' plans, changing the time of a plan, canceling a plan, suggesting new plans. During each step we took note of the obstacles they encountered. We also asked the participants, as Krug (2000) recommends, to think out loud and voice their impressions and opinions as they came to terms with the service.

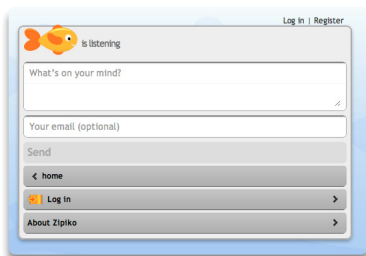
We used the results of user tests to evaluate the successes and failures of the latest additions and changes to the interface, and to prioritize the issues to address in the future.

I will refer to specific findings from the user tests in more detail later, as I examine the design decisions that were guided and informed by these tests. User testing notes will be marked accordingly.

4.2.5 User feedback

Along with the results of the user tests, we used another source of data from the users to help guide the design.

Starting very early on, the Zipiko web site included a link on every page to a feedback form, a simple way for people to send us a message.



These messages were very helpful in pinpointing issues and malfunctions of the software, but very often they also alerted us of usability issues and opinions of our users.

According to Nokia researchers Li and Chandra (2008), when developing for the mobile web, “the function of the software improves continuously (so-called ‘perpetual beta’) as user feedbacks are collected and addressed in the service. There is no need to wait for ‘official’ releases of the software.”

User feedback was indeed the most immediate way to gather data about new design ideas. By releasing redesign attempts often, we were able to more rapidly discard failed approaches and validate successful ones.

As with the results of user testing, I will quote specific feedback in the following pages, whenever it is relevant to support the specific decisions. Quotes from user feedback will be marked as such.

4.2.6 **Site metrics**

As people visited the site and interacted with the service, we gathered basic statistics about them and recorded their path through the site and actions taken.

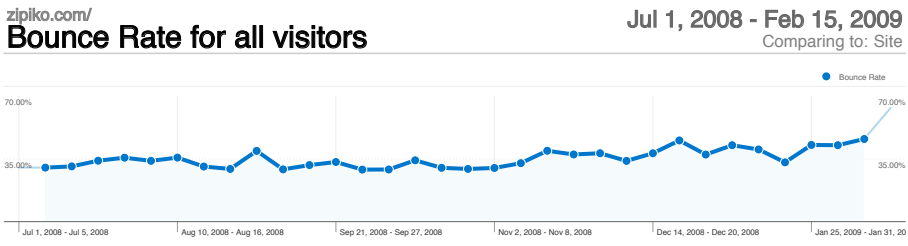
These metrics can provide valuable insights into the kinds of people who are using the service, which helps to better understand them and what they expect from the site. It also helps identify which aspects of the site are working successfully and which aren't.

For example, the *bounce rate* represents the number of people, out of all the visitors, who view the front page and leave after that without taking any further steps on the site.

Bounce rate will tell you how many of those people were unimpressed and left your site without taking any action. (Kaushik 2009)

The bounce rate is therefore a good measure of how effective the front page is in capturing the attention of the users and encouraging them to spend more time to find out more about the service.

As the graph below shows, Zipiko started with a relatively low (30%) bounce rate. However, as time went on, the bounce rate rose slowly but surely. This suggests that some more care should have been put into maintaining and improving the front page.



When used extensively and effectively, metrics can be an extremely powerful tool to evaluate many individual aspects of the site. For example, the number of events created by each person could help measure the success of the event creation interface; the number of steps completed on average could even give an insight as to which part exactly is most likely to baffle users. The number of invites sent per event would similarly reflect the efficiency of the inviting interface, whereas the number of responses triggered by an invite could help evaluate the effectiveness of the text of the invite message and the quality of experience when landing back on the site after having received an invite.

Unfortunately, we fully grasped the importance of metrics only later in the project. Detailed statistics were not recorded in the early versions; adding the capability was considered but the addition kept being delayed in fa-

your of more urgent changes. Metrics were therefore not leveraged to their full potential.

4.2.7 Split testing

Split testing, sometimes called AB testing, is a technique based on the use of metrics to select the most effective design out of a set of alternative proposals.

AB split testing allows you to randomly divide your visitors into two groups and show each group a different version of a page to determine which version leads to higher conversion, average order value, application completion, or other target. (Roche 2004)

By offering alternate versions of a specific interface simultaneously to different group of users, it is possible to obtain immediate and concrete feedback as to which of the alternatives is more effective.

Building something nobody wants is the ultimate form of waste, and the only way to get better at avoiding it is to get regular feedback. Split-testing is the best way I know to get that feedback. (Ries 2008)

As previously mentioned, however, we did not have detailed statistics available during this project. In addition to this, split testing also requires a significant amount of traffic on the site in order to obtain statistically reliable results. For both of these reasons we did not fully leverage this technique.

However, we did gather data about the relative merits of alternative solutions, though in a slightly different way. We would regularly release different versions of the site, sometimes including new approaches to existing interfaces. Feedback on these proposals was gathered through user testing and user feedback. The evolution of the interface was not as systematic and rapid as it could have been with full metrics-based split testing, but it was happening nonetheless.

5 Results

This section explains the design choices made, the reasoning behind them, and discusses how well they were received and how they evolved through user feedback and user testing.

5.1 Overall design decisions

Here I will discuss the overall design choices that affected the whole site. Later I will discuss in more detail the specific decisions for each part of the site.

5.1.1 Unified mobile and desktop interface

The Zipiko site was initially designed primarily for high-end mobile phones, particularly the Nokia S60 Series, and later the Apple iPhone. Leading usability expert Jakob Nielsen agrees that companies with limited resources should develop a single mobile version targeting higher-end phones.

If you have only one mobile site, target the medium-to-higher-end devices, as opposed to making a WAP-like site that everybody will hate (Nielsen 2009)

This initial goal played a big role in shaping the overall design and layout of the Zipiko interface. For example, the layout is vertical as it is designed to fit on a narrow screen.

A design that is neutral to a range of devices is more likely to reach a critical mass of users than one that is not. It is necessary to optimize the service for mobile phones but equally important to make it work on both mobile devices and laptop/desktop PCs. (Li & Chandra 2008)

When we later started targeting Zipiko for desktop browsers as well, we made the decision not to radically break – at least initially – from the mobile-optimized interface to design a separate, desktop version. This decision was based on four main reasons.

First, it reduces the amount of work, both in terms of design and in terms of development. Having two separate versions of the site would have required almost twice as much effort.

Secondly, it serves as an added guiding principle and constraint to keep the interface simple. If some feature or interface solution did not fit on the small screen of a mobile, we considered it not crucial enough to be included. Again, this helped keep the costs of development low, but – we believe – also to reduce the cognitive overload on our users.

Further, it makes sure that our users get a consistent experience, no matter which kind of device they use to access Zipiko. Not only are there no missing features on the mobile site – as it often happens with the alternative mobile versions of popular sites – there is also nothing new to learn or elements to search for when switching from one version to the other.

Lastly, it creates a very strong branding element. The Zipiko site, with its narrow central column and edge-to-edge vertically stacked elements, could

be recognized at a glance from meters away by anyone who has ever seen it, even when changing the colors.



The World Wide Web Consortium – the organization tasked with defining the standards in use on the Web – supports this approach, by recommending that the mobile and the full version of a site present the same information.

OneWeb means making, as far as is reasonable, the same information and services available to users irrespective of the device they are using. (W3C 2008)

5.1.2 Minimizing typing and cursor movement

Initial testing with the devices showed that there are two common actions when browsing mobile sites that significantly slow down the users and detract from the experience. The first one is, understandably, typing.

The tiny built-in or virtual keyboard makes it awkward, if not impossible, to input large amount of texts. (Li & Chandra 2008)

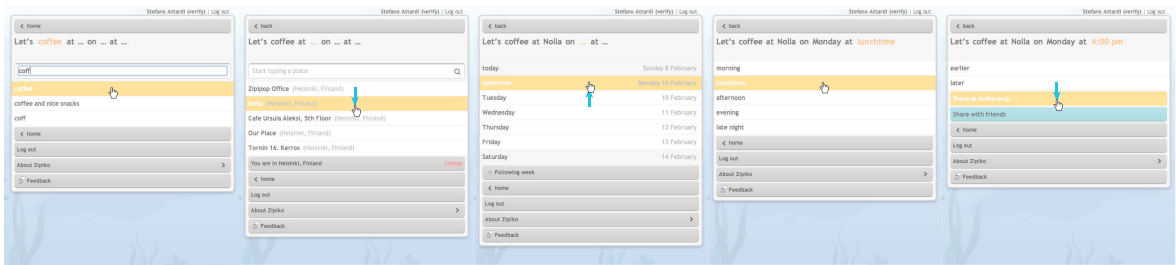
Most of the Nokia S60 devices do not have a full keyboard, but only a numerical keypad. Typing is slow when using predictive text, and even slower when predictive text fails – which it often does when typing names, numbers or passwords.

The second problem is that these devices lack a pointing interface, such as a mouse, touch pad or touch screen. The regular interfaces for these devices compensate for this by not using a pointer on screen, but using an arrow-based navigation system instead.

However, when browsing a web site, the navigation necessarily switches back to a cursor-based one. The cursor is moved using arrow buttons, but the movement is slow and inaccurate when compared to a mouse.

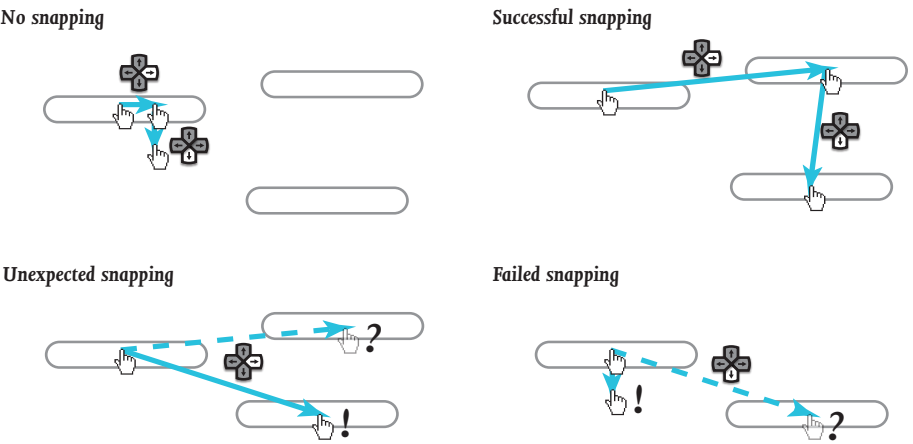
Therefore, in order to make the experience of using Zipiko on such a device more efficient and enjoyable, we set the goal to minimize both the typing and the cursor movement. These were two of the primary guiding principles underlying the initial design.

For example, the following image shows how we achieved the goal of minimizing the cursor movement on the event creation interface. By splitting the process into separate steps on different pages, we managed to avoid having to move to the next section to fill in more details, or worse, scroll down to find it. Instead, what happens is that once an option has been selected, the options available for the next step appear in the same location on the page. It is therefore very likely that the desired option will be under the cursor already, or just a few pixels away. Early testing on the interactive prototypes validated this approach.



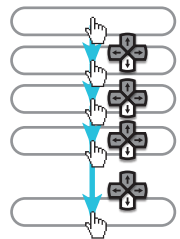
5.1.3 Vertical snapping interface

We noticed early on that the cursor movement on the Nokia browser is not always uniform. The cursor in fact snaps, when possible, to the closest available clickable element in the direction of the arrow button pressed. This can be a big help when it works: the cursor is instantly centered on the element, there is no need to wait for the cursor to slowly reach it and then having to adjust the position to make sure it is on top of the element. However, when it fails – either by snapping when not expected, by snapping to the wrong element, or by not snapping at all – it can be very unnerving.



We tried to design a layout that would take advantage of this feature as much as possible while minimizing the drawbacks. What resulted was a vertical layout, similar to the traditional Nokia menus. Movement only happens vertically, so the only buttons needed are the down arrow, and – occasionally – the up arrow, and there is no guessing which element the snapping will target.

Vertical snapping



Early tests with such a layout were satisfactory. The cursor only jumps between buttons, in a very predictable way. With a bright highlighting of the currently selected element, the cursor loses its purpose and fades out of mental focus.

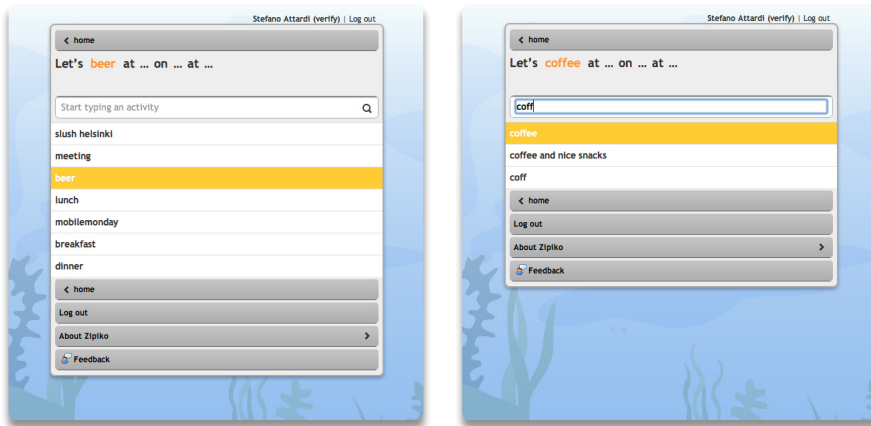
The result is an interface that looks and feels as if it was designed to be used with arrow keys, like the traditional Nokia menu interface. Being able to navigate by not having to switch directions, or worse, moving diagonally, is another big speed boost.

5.1.4 Suggestion and autocompletion

It is crucial in a service like Zipiko for the inputting of plans and ideas for social activities to be as simple as possible. As our service would be, in many cases, in direct competition with sending an SMS, we set ourselves the goal of making creating events simpler and faster than typing an equivalent SMS. We tried to achieve this simplicity by minimizing the amount of typing required.

The first way to minimize typing was to provide a reasonable set of pre-set options at each step. Selecting one of the options is faster than typing the whole text of it. It also helps in suggesting ideas for someone who might not know already what to choose. This also became a crucial feature of our revenue model (see page 78).

While emphasizing the preferred option of selecting existing suggestions, we wanted to keep the flexibility of being able to select any activity or place. Therefore we added the possibility to search for additional options, by using *autocomplete*, a pattern which is rapidly becoming standard (see page 31).



Instead of having to rely on memory entirely, autocomplete helps users to locate the desired item in less steps than would be needed to enter the entire label. (Wellie 2008)

Reducing the number of keystrokes allows for faster user input. Continual feedback helps the user narrow in on the correct choice. (Yahoo! 2008)

When applying this pattern, search is instant and partial, meaning that typing the first few characters of a desired option is enough to find it, provided it has been used once before.

Within the autocomplete interface, we added the possibility of creating new options. Names of new activities and places typed in the search field can also be selected, and are remembered for later searches. This creates an ever-growing user-generated database of activities and places and the links between them.

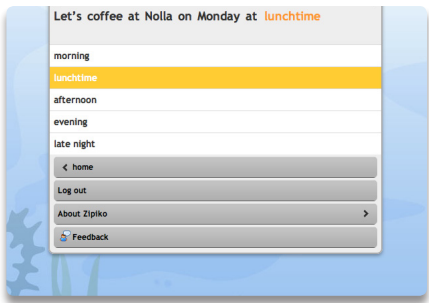
We also planned for the possibility for the system to learn the preferred options for the whole community, and for each user. Therefore, with time, the list of initially suggested options would adapt to reflect the most popular options in general, with an added bias towards the options preferred by the specific user.

5.1.5 Natural language approach

As mentioned previously (see page 56), in order to minimize cursor movement, we decided that the event creation interface would be split into steps. Within each step, the set of options replaces the previous one in the same location on the page.

As a way to show the progress up to a certain point, and create expectations for the future steps, we introduced a natural-language phrase element at the top of the page. The event creation process then became an act of filling the gaps in the phrase “Let’s ... at ... on ... at ...?”.

For example, when a user selects an activity ('beer'), the first gap fills, and the next one (place) becomes highlighted ("Let's beer at ... on ... at ...?"). And so on, for day and time.



This phrase became a recurring element throughout the interface. The same phrase is used, for example, in the text of the SMS invites.

5.1.6 Use of colors

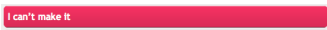
Throughout Zipiko, colors are used as much as possible for semantic purposes. A meaning was selected for each color and the color was applied consistently based on that meaning.

As Fadeyev (2009) writes, it is important to give different emphasis to key functions and secondary ones. Fadeyev (2008b) also recommends specifically using colors to manage attention. We chose a bright color for primary clickable buttons. A neutral color was chosen for minor and secondary options.

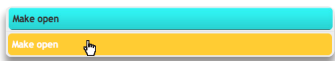


The brighter color of the main buttons will guide the user's focus, while the dim buttons won't distract unless specifically called for.

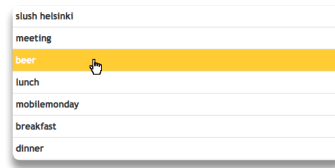
Buttons which represent destructive operations, such as leaving an event, cancelling an event, removing a contact, are shown in red.



Every clickable element highlights with bright yellow when the cursor is over it.



As is now common (see page 32), list of options of the same type are white, separated by thin gray lines.

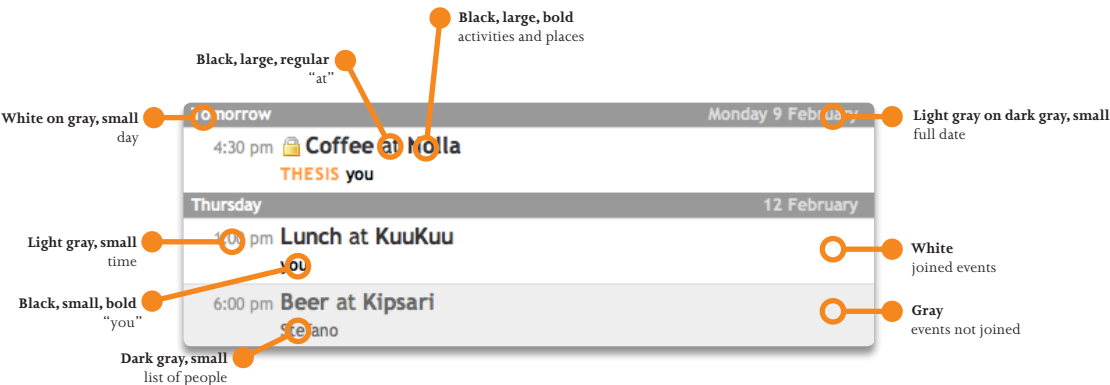


In the list of events, various shades of gray are used to adjust contrast in order to manage focus towards the most important elements. (Fadeyev 2008a; 2008b)

Contrast is one of the more powerful tools in your arsenal, so be sure to use it not only to give the most important things the focus they deserve, but to also remove any noise from secondary and tertiary elements on the page. (Fadeyev 2008a)

The image below shows how the most emphasis is given to the titles of the events, which include activity and place. More specifically, pure black on a pure white background is used for the events the user has joined, while a dark gray on a light gray background is used for all other events.

The second level of contrast is reserved for the list of people who joined the event, which is a slightly lighter shade of gray. An exception to this occurs when the user is in the list, in this case the “you” word is bold and black, for emphasis. The last level of contrast is used for the times of the event, an even lighter shade of gray.



Contrast is also used for the date headers, themselves a shade of gray which is light in order to reduce the overall page noise. Originally, the background color was even lighter, but feedback prompted us to darken it slightly to increase readability.

USER FEEDBACK Moi! The dates in the header of events is really hard to read (for an ols man like me), due to a very low contrast.

USER FEEDBACK The readability of the cyan fonts (as seen in the schedule times) and the white fonts on the light gray backgrounds (title headers) is poor.

Now the color strikes the right balance between readability and visual clutter.

Within the header stripe, the name of the day, arguably the more useful piece of information, has the highest contrast, whereas the full date, only occasionally needed, has less contrast.

Throughout the whole site, orange is used exclusively in connection with groups.

The background of the site is a light shade of gray, to better emphasize the input fields (see below).

These colors went through several iterations before we settled on the current ones. Overall, the final choice of colors received positive feedback.

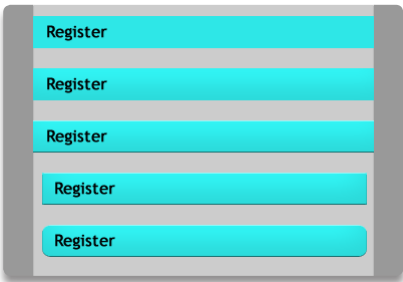
USER FEEDBACK Niklas says your colors are trendy.

5.1.7 **Buttons**

The look of buttons went through various successive iterations, in order to enhance their clickable look. User tests were crucial in this process.

In early prototypes, buttons were flat rectangles of color, stretching from side to side. Adding a slight gradient and edges gave the buttons a raised look. It improved results in user tests, but still did not solve the problem altogether. What gave significantly better results was rounding the corners and leaving a margin at the sides.

Arrows are shown on buttons which lead to another view. No arrows are present when the button performs an action on the current displayed information.



5.1.8 **Input fields and labels**

The input fields went through a similar iteration as the buttons. Initially input fields were simple white rectangles. Users found it hard to tell which space they were expected to write into.

USER FEEDBACK The difficulty is for me, that there are several differently colored and same sized boxes and only white color indicates what it is editable.

USER TEST The user clicked on Register but could not see where to put her name.

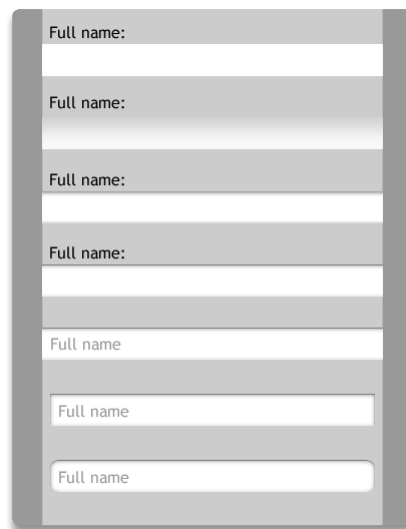
USER TEST The user didn't see the place to input the phone number and clicked immediately on the 'Let's go' button.

USER TEST She clicked on the ‘continue’ button (she still hadn’t inputted the phone number) because she thought this was just a start page and after this page there would be the page to join. Then she got the “we need your phone number...” message. But she didn’t see any place to put her phone number.

As with the buttons, various designs were tried and tested. We added some margin to the input fields as well, in order to emphasize the contrast between the light gray background and the white background of input fields. As with the buttons, we rounded the corners. In this case however, a reversed gradient to add depth did not help. We obtained better results with a flat white background, presumably because it provides more contrast with the rest of the page. Eventually, the most successful design had an inset edge, rounded corners and a margin around it.

A separate issue was the placement of the label for the text field. Labels were initially placed above the text field, a common practice which is recommended in many studies.

Eye tracking studies suggest that “placing a label above an input field works better in most cases, because users aren’t forced to look separately at the label and the input field.” (Penzo 2006)

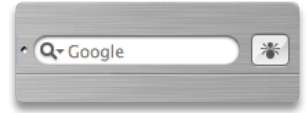
The image shows a vertical sequence of seven different input field designs for a 'Full name' label. Each design is contained within a light gray rectangular frame. 1. The first design has the label 'Full name:' positioned above a white input field. 2. The second design has the label 'Full name:' positioned above a white input field. 3. The third design has the label 'Full name:' positioned above a white input field. 4. The fourth design has the label 'Full name:' positioned above a white input field. 5. The fifth design has the label 'Full name' positioned inside the white input field. 6. The sixth design has the label 'Full name' positioned inside the white input field. 7. The seventh design has the label 'Full name' positioned inside the white input field, which is set against a light gray background.

However, we were still not satisfied with the result. Some users missed the instruction text above the button, while others tried to type to the right of the label.

We did a survey of the applications and services that are popular with our target users nowadays. What we discovered is that a new standard has emerged for the placement of input field labels. Labels are now often placed inside the field itself.

This approach first appeared on web sites in the early 2000's, and found its way into desktop applications in 2003. The first record of this is a review of the first version of Apple's browser Safari by Gruber (2003):

I despise the 'instruction text' that fills the box when it doesn't have input focus.



This solution was initially harshly criticised, as it was said to confuse users who expected to have to select and delete the instruction text. This was indeed often the case in the early days. Later, however, better implementations have surfaced, and people have become so accustomed to it, to the point that it has now become widely accepted. It is used consistently, for example, in Facebook and throughout Apple's products.

We decided to try this approach and test it against the previous label placement, and it yielded much better results. We concluded that the best placement for the labels is inside the input field itself.

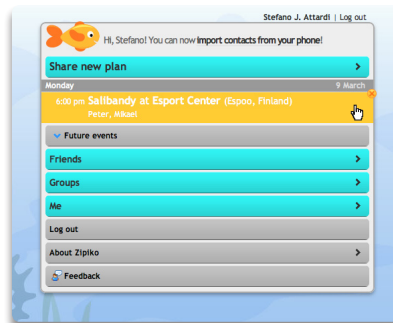
This finding does not contradict previous eye tracking studies (Penzo 2006) which suggest that it is best to place the label as close as possible to the input field.

5.1.9 Hover controls

Some Web applications have extra utility controls, such as edit and delete buttons, that don't necessarily have to be shown beside every item at all times. They can be hidden to simplify the interface and focus visitors' attention on the main controls and content. (Faddeyev 2008b)

We use buttons which appear only when the cursor is above a certain element for certain features which are only very rarely needed. We kept the use of the pattern limited as it prevents the feature from being accessed on touch screen devices.

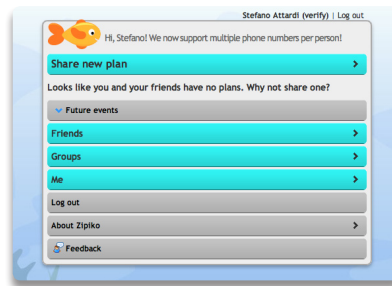
An example of such a control is the hide event button, which permanently removes an event from a users' home page.



5.1.10 Empty states

When you're designing a Web application, it's important not only to test it with sample data, but to ensure that it looks good and is helpful when there is nothing there yet. You should design the empty states. (Fadeyev 2009)

Throughout Zipiko we aimed to take advantage of all the situations in which no data would be present to guide the user to what he should do next. In the following example, the user and his friends have no plan coming up, so we suggest creating one. In this case, the user has already added some contacts. If he hadn't, we would suggest he add some first.



5.1.11 Layout


The vertical layout with vertically stacked elements which span the whole width of the interface are a direct result of two of the design goals previously mentioned: a single mobile-friendly interface, and a layout which facilitates snapping with the cursor on Nokia devices.

This layout gives Zipiko a distinctive form, which could become a powerful branding element. For example, in the future Zipiko could allow groups and venues to customize their own page on Zipiko, by changing the background and the colors of the interface. Even then, thanks to the layout, the page would be easily recognized as belonging to Zipiko.


On the other hand, this layout was a limiting constraint when planning new features or trying new approaches to the design. It created many challenges, for example when looking for ways to group related elements together.

We often debated the idea of departing from this layout. The decision was never made. However, towards the end of the project, we started bending the layout in a few situations. The following image, for example, shows how we added buttons beside text boxes in the settings page. This reduced the amount of space needed while at the same time clarifying the relationship between the input fields and the buttons.

Stefano Attardi (verify) | Log out

 To view that page, you need to register first.

[< back to event](#)

 Already a user? Log in

[>](#)

YOUR FULL NAME

Stefano Attardi

Save name

CONTACT DETAILS

You don't have any contact details!

+358 Phone number

Add

zipiko@attardi.org

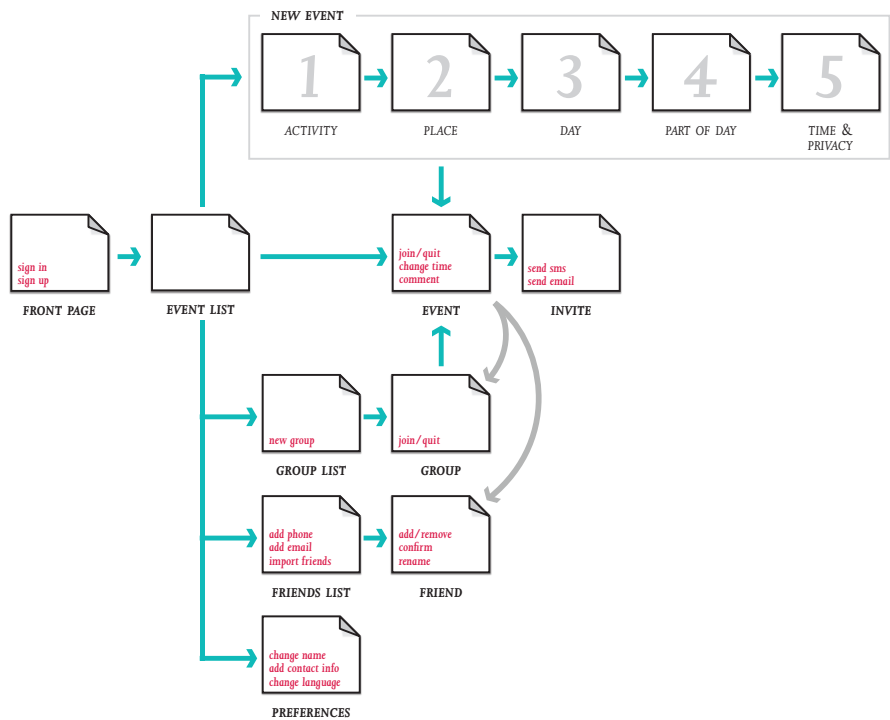
Add

5.2 **Interaction**

5.2.1 **Initial structure**

The initial structure of the site was relatively straightforward. As is common, there were separate versions of the main page for registered and unregistered users. The section for registered users was accessed either by signing in as an existing user or signing up as a registered user.

Registered users would see a main page listing the upcoming events that are relevant to them. The same page would guide them to the other main sections of the site: event creation, groups, friends, and settings.



5.2.2 **Revised structure with gradual engagement**

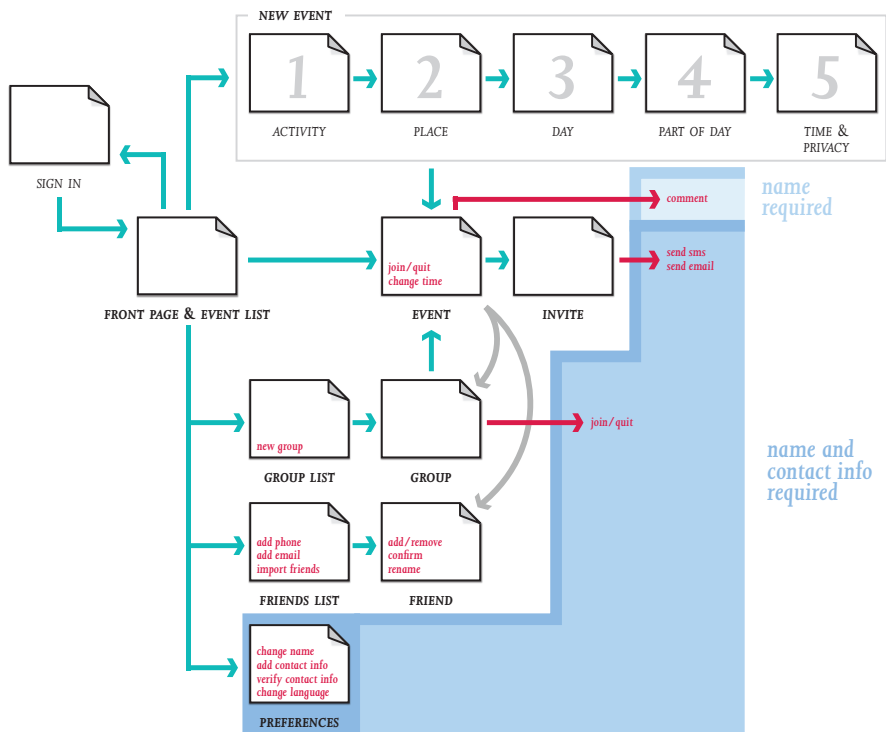
Once we eliminated the mandatory sign up process (see page 79), the event list became the main page for registered and unregistered users alike. The sign up form was removed, and the sign in form was moved to a separate page.

The site functionality is now split into two parts, one accessible both to registered and new users, and one only available to users who have completed their registration. The registration is, whenever possible, embedded in the current action the user is performing, in order for the experience to be as seamless as possible.

For example, an unregistered user can create an event, but when performing certain actions, such as posting a comment, he is asked for his name as well, so that others will know who wrote the comment. Likewise, when he tries to invite a friend through SMS or email, he will be asked for his name and contact details, so that the recipient will know who is inviting him and how to contact him.

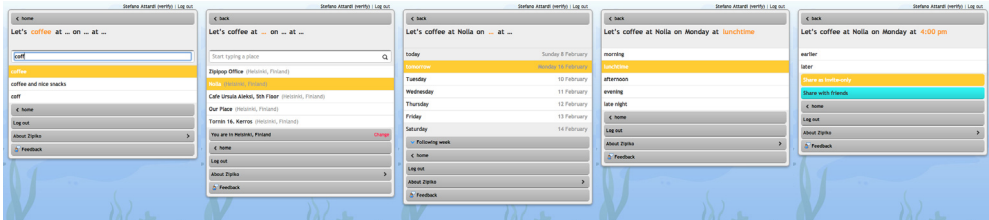
The first time a user enters his contact details, we take the chance to send him a password that he can use to sign in again later. This way, it is possible for people to get access the whole functionality without ever filling in a sign up form.

It is also possible to complete the registration as a separate step, by visiting the special preferences page. By filling in his personal information there, the user will be instantly registered and will have access to all the functions of the site.



5.3 Parts of the service

5.3.1 Event creation



The interface for creating a new event was the first one we developed, as we believe it is crucial for Zipiko to be successful. If creating an event is too complex or time-consuming, people will think twice before posting an idea, making the overall service less valuable, and drastically reducing our advantage compared to substitute services such as Facebook Events or SMS.

Many of the design patterns previously discussed emerged while designing this interface, and can be seen at work here. The process is split into different steps (activity, place, day, time, privacy & confirmation), in order to minimize cursor movement. A phrase element at the top serves to link the steps together, confirm the choices done up to the point and inform as to the choices remaining. To minimize the need for typing, the first two steps display popular options for places and activities, combined with instant search (autocomplete), and the remaining steps list all the possible options.

In the date selection step, we originally only showed 7 days in the future, as we imagined Zipiko to be used for planning short-term events. User tests and feedback prompted us to add an option to select weeks further in the future.

USER TEST When choosing the day the user was expecting to see a calendar with more dates available not only 7 days.

The interface tested well with users familiar with the service. Once they understood how it worked (for example by watching the demonstration video), they could efficiently create new events.

However, this design was causing problems for first time users. User test subjects showed difficulty grasping the connection between the highlighted gap in the phrase, the search field, and the list of options. It was not clear that the highlighted part of the phrase is meant to be filled by either selecting an option below, or typing a new one in the search field. Many test subjects tried typing over the gap directly, while others used the input field to describe the whole event rather than just typing the name of the activity.

USER TEST Under the activity input text box he wrote the activity+location altogether.

Another problem which consistently showed up in feedback was the perceived complexity of the multi-step approach.

USER FEEDBACK Minor thing with creating happenings, I personally like that if more information is possible to edit in same view, the better. It is not frustrating to scroll views back and forth, but with this kind of data there should be as much value added easiness or other advantages to use Zipiko.

USER FEEDBACK Creo que es demasiado complejo la forma de crear un evento, es decir, hay que seguir muchos pasos. (I think the form for creating events is too complex, that is, you have to follow many steps.)

USER FEEDBACK Seria interesante una interfaz mas intuitiva que no tenga tantas acciones para crear un evento, que puedas configurar todos los datos del evento desde la misma pantalla. En general buen trabajo. (It would be interesting to have a more intuitive interface that does not require as many actions to create an event, so that you can set all the information of the event in the same page. Overall good job.)

While being more efficient on mobile devices, the chosen design falls short as it requires a greater cognitive load (Celik 2007).

All other things being equal, the cognitive load required to complete an action or task in a human computer interface is directly (probably linearly) proportional to the number of clicks and keystrokes required to complete that action or task. Cognitive load can be roughly defined as “how mentally easy/hard it feels to do something”. (Celik 2007)

We acknowledged the issue, and we experimented with various alternatives. One approach we tested while attempting to resolve the problem with the phrase-based interface not being clear enough was replacing the phrase with a simple set of questions (What? Where? When?), prompting the user to simply answer at each step. This, however, did not test well.

USER TEST The user thought that having only the questions “What, Where, When” was a bit too “dry” and he was not sure what he should input first. He said he preferred the “sentence completing” that he had seen on the video. It was more fluid.

Ultimately, none of the alternatives we considered fit the requirements of being suitable for a small mobile screen, while at the same time keeping the suggested options, crucial for usability, discovery, and for the business model (see page 78).

5.3.2 **Event list**

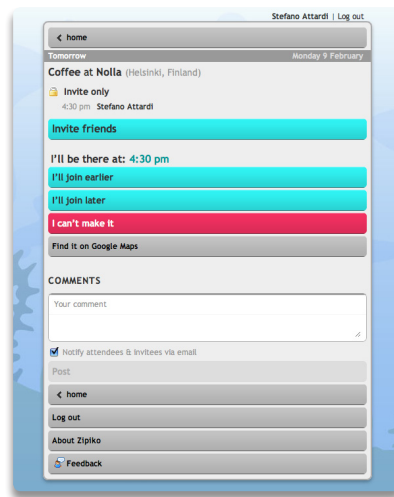


The event list page is the starting point for registered users. It links to the other main sections of the site, and shows the upcoming activities that friends have planned, in chronological order. For each event, many details are displayed, such as the time, the list of people attending, whether the event is private (invite-only) or not, and the number of comments. The visual overload which could be caused by displaying many details on the same page was managed by the use of contrast (see page 60).

As opposed to the event creation interface, the event list was a much more straightforward design. Few problems were encountered and very few changes were done since the original design.

The main changes were color adjustments based on feedback (see page 60), the addition of a local time for events happening in different time zones, the addition of the city name for events happening in different cities, the addition of a comment counter which is highlighted when there are unread ones, and a separate page for events happening in the distant future. This last change was done in order to avoid confusion in those cases in which events far in the future show up among immediate events, and might be misconceived as happening in the current week.

5.3.3 Event detail



The event detail page includes all the information about an event, including a complete list of attendees, grouped by estimated time of arrival. It also groups all the actions that can be taken related to an event: joining, quitting, checking the location of the event on a map, adding a comment, posting the event to a group or inviting friends.

There were no major problems with the original design. However, two improvements were guided by the users, one through user testing, one through feedback.

USER TEST The user tried to join just by clicking on the “earlier-later” buttons. On a 2nd try he completed the task ok.

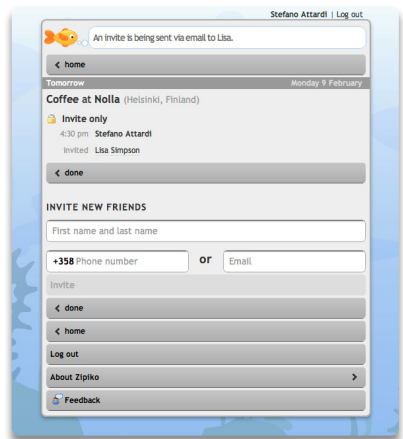
Originally, we showed earlier/later buttons alongside the join button, in order to let people specify the time they’ll be joining while joining. However, this was shown to be confusing, so we made the earlier/later buttons available only after the user has joined.

USER FEEDBACK I think you should still be able to invite friends to an event even if you are not going yourself. That way you can make sure your friends know about a concert, seminar etc even though you might be unable to make it.

Based on feedback like this one, we enabled the “invite friends” feature also for people who had not previously joined the event.

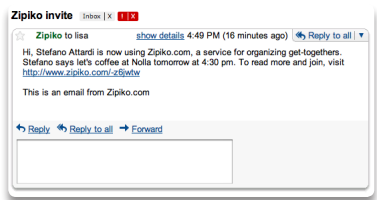
5.3.4 **Invites**

The page to invite friends is a sub-page of the event detail page. Clicking the “invite friends” button brings up a page showing the list of friends, plus an input field for inviting new people directly by entering their phone number or email.



When clicking on a friend’s name, the invite is sent instantly. This was shown to be problematic, as many users often invited people accidentally, as they expected a confirmation step. A new two-step approach with confirmation was discussed but not yet implemented.

The following image shows how an email invite looks like when the user receives one for the first time.



The special link in the email brings the receiver back to the event page, and it also automatically creates an account for the user based on the name and email address entered by the inviter. SMS invites instead contain instruction text which reads “reply ‘yes’ and Zipiko will let the others know you’re going”. By replying to the SMS, invitees are automatically added to the list of attendees on the site, and will receive an SMS reminder shortly before the event with a summary of the information about the event (see page 73).

An occasional issue raised with this system consisted in people replying to messages expecting the text to be read by the inviter. A possible solution to this could be adding any text in the received messages as comment to the event.

The “Zipiko will let the others know” text was chosen to succinctly give an incentive for people to reply to the invites. It refers to the fact that friends will

be able to check who replied through the web interface, and will later receive a reminder SMS with the names of people who replied. However, there are a couple of issues with this. First, the incentive for people to reply did not seem to work, as few actually replied. Second, it mislead some into believing that the reply would be passed on instantly, which is not the case.

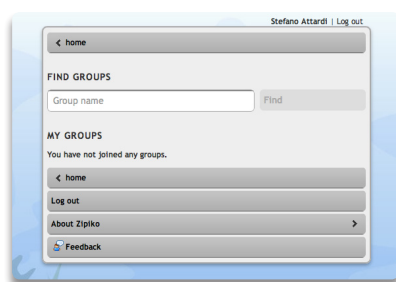
5.3.5 Reminders and confirmations

One hour before an event with two or more attendees, each person is notified via their preferred contact method (email or SMS). The reminder includes the basic information about the event, and the list of attendees, and also asks the receiver to notify the system (through a link in email, or by replying ‘no’ to the SMS) within 15 minutes in case he is no longer planning to attend. After 15 minutes, in case anyone cancelled, a new message is sent to the attendees alerting them of the change. The purpose of this is to prevent failed meetings, which could lower the confidence in the events listed in the system.

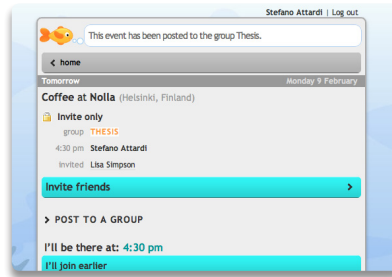
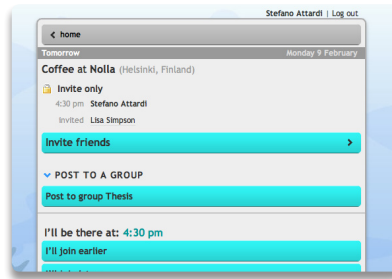
5.3.6 Groups

Group functionality was added with the hope of engaging existing user groups who need help coordinating meetings and events, such as student unions and sports teams (see “sports buddies and enthusiasts” on page 37).

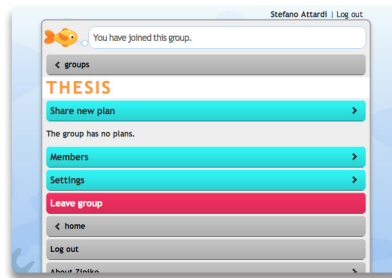
As this function was initially designed to support existing groups, who already have their own communication channels, we didn’t include functionality for discovering existing groups. Therefore, a group can be found either by receiving a link to it, or by typing the full name of it in the groups page. A group can be created in the same way, by simply typing its name. The “find group” form therefore has a double purpose, which is confusing for some people.



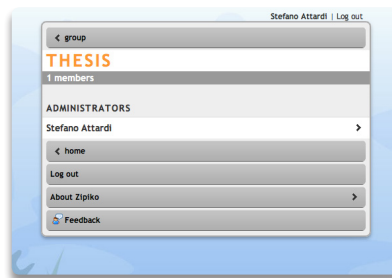
On the group page, a user has the option to join or quit the group. Once joined, he will see all the events posted to the group on his main page as well, appropriately labeled as belonging to the group. He will also see buttons allowing him to post a new event to the group in each event’s detail page.



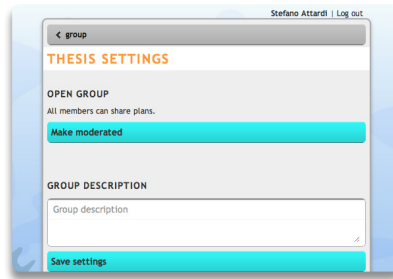
The page of a group mimics the main page. It shows a list of events coming up which have been shared with the group.



The group page has an additional link to the page listing the group members.



Group administrators (initially the person who created the group), have access to extra functions, such as a page allowing them to add a description text to the group, and choosing the privacy setting of the group: open (anyone can post events), or moderated (only the administrators are allowed to post).



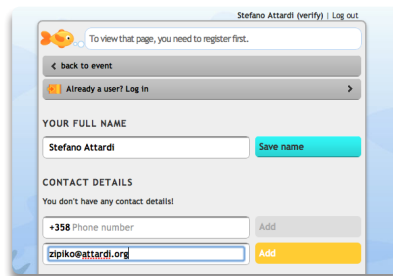
Administrators also have access to extra actions on the members page which let them remove users from a group or promote them to administrators.

5.3.7 Sign up and sign in

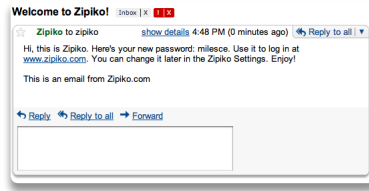
To register for the service, a “register me” button is provided on the main page.



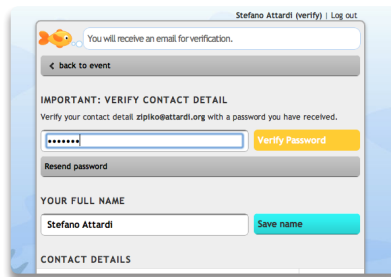
It leads to the profile page where a user can fill in his name and add his contact details.



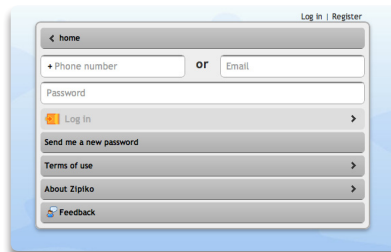
Once a contact detail is added (email or phone number) a message is sent to the user welcoming him and providing him with a password which he can use to log in later.



The password can also be typed in on the site in order to confirm the actual ownership of the email address or phone number. An unverified contact detail is in fact never used for sending reminders and confirmations, to prevent unknown third parties from receiving unsolicited messages from Zipiko.



It is possible to add multiple contact details, in order to be more easily found by other people who might be using a separate email or phone number for the person. Additional contact details are verified by sending a special verification link. Verification also happens automatically when replying to invites or reminders.



Users will remain logged in to the site indefinitely. They can choose to log out, or they might want to log in on different devices or computers. A log in page is therefore provided, which allows users to sign in with any of their contact details and their password.

5.3.8 Settings

The settings page allows people to update their personal information, change their password, or change the language of the site.

Stefano Attardi | Log out

home

YOUR FULL NAME

Stefano Attardi

Save name

CONTACT DETAILS

email zipiko@attardi.org verified primary

+358 Phone number

Add

Email

Add

CHANGE PASSWORD

New password

Confirm new password

Change password

CONNECT ZIPIKO

To your calendar

CHANGE LANGUAGE

English

Suomi

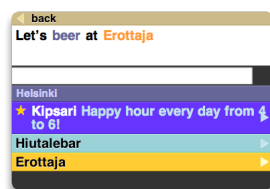
Français

Deutsch

Revenue model

Since the beginning, we planned to support the option of having sponsored places appear in the service. This was the basis of our first revenue model. It has a number of advantages compared to a typical banner advertisement system.

First, it fits naturally within the interface, as the service already suggests a number of locations which are popular for the activity the user has selected. In this example, the user is about to choose a place where to go for beer. He is presented with the most popular beer locations in his city (Hiutalebar, Erottaja). Above these, however, appears a sponsored place, Kipsari, with a special message entered by the Kipsari owners.

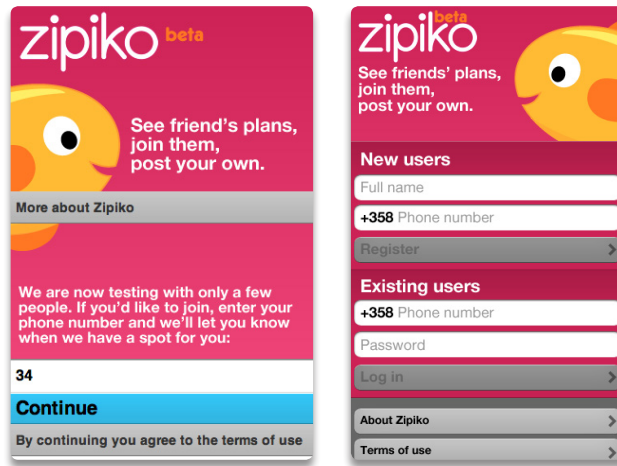


The second advantage is that the advertisements are extremely targeted. Not only are the ads only shown to users in a specific location, they also target people who have specifically expressed the wish of going to a place of a certain kind (e.g. beer, shopping, dinner...).

The final advantage is that the ad is shown at the exact time when the user makes a decision about where to go. With traditional advertising, a long time can pass between the moment a person is exposed to the ads (e.g. at home watching TV) to the time when he makes the purchase decision (e.g. in the supermarket). The advertisement needs to leave a powerful lasting impression, and probably reach the person more than once before it successfully affects the buying choice.

Gradual engagement

The sign up flow went through many revisions, as it turned out to be the most challenging aspect to design and implement.



The first versions presented people with a single text field for the user to type his phone number. Only on the second screen, based on whether the number was recognized or not, would we either ask the user to log in by entering his password, or we would send a new password to the phone, and ask him to log in once he received it.

This simple interface minimized typing and errors (as the user didn't have to choose between the sign up section and the log in section). Many people liked the simplicity of signing up by simply typing a phone number. However, other people were confused, as many of them looked specifically for a “log in” or a “register” button or link.

We then changed to a more traditional design, with separate registration and log in sections, with mixed results. Many users found the design more straightforward, but people who came to the service after being invited were not sure whether they were considered “new” or “existing” users.

USER FEEDBACK Registration for new users is very confusing now. If you invite friends thru new event and they come to the site it's not obvious what they need to do. Was better before with just one login box. Just invited [many] people and they couldn't figure out how to get into the service without me helping...

People eventually got used to the second design, and we stopped receiving complaints about it. However, we started receiving more generic complaints about people resisting to sign up.

USER FEEDBACK Outo aloitus. Painoin rekisteröidy nappia kolmesti ennen kuin tajusin, että harmaa juttu pyytää puhelinnumeroani. Miksi? Tämmöseen en rekisteröidy... (He says

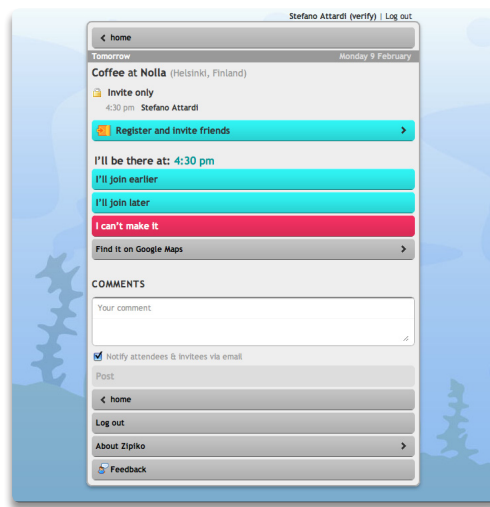
that he thinks it is weird to give his phonenumber...And that this kind of service he doesn't want to sign in...)

To address this issue, later in the project, we introduced what Wroblewski (2008) calls gradual engagement.

Through the process of gradual engagement, you learn what a web service does, and you do it without an explicit registration form requiring you to fork over a lot of information.

More succinctly, Wroblewski states that “sign-up forms must die”.

In the current version of Zipiko, users are encouraged to start using the site immediately, without having to complete a registration procedure. We only ask for basic information (name and one contact detail) when strictly necessary. For example, when inviting friends, as the receivers will want to know who is inviting them.



We always aim to give a good reason for the users to give out their information, only ask for as little as possible, and make the process as integrated with the current action as possible. We take the chance to send a password to the user's inbox as soon as he adds a way to contact him. That way, if needed, he will be able to log in again and recover the events created and friends added.

This solution lowers the barrier to entry to the service. However, it creates new design and development challenges, some of which have yet to be addressed.

It's worth noting that any web service that automatically sets up an account for its customers may leave some people confused about whether they actually have an account or not. After all, they did not explicitly create one. As a result, these services need to ensure they have an easy way for people to access their account information if they did not see or chose to ignore the email they were sent outlining their account information. (Wroblewski, 2008)

6 Reflections

In the final section I will discuss the possible reasons for the disappointing uptake in usage, what could have been done better, and what was learned during the project that the company can do differently in the future.

6.1

Obstacles to acceptance

Zipiko failed to attract a stable group of early adopters. I will try to analyze the reasons that possibly contributed to this.

6.1.1

User needs

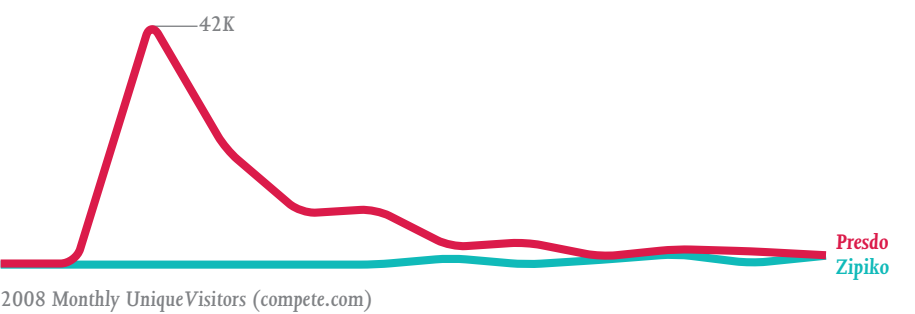
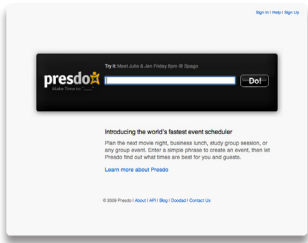
Usability is only the first of the qualities we should expect from the systems we use; they also need to be useful. (Moggridge 2006)

One of the possible reasons for the disappointing results of Zipiko is that the need that we set out to address is not strong enough. In order for people to use Zipiko regularly they need compelling reasons to switch over from their existing tools and go through the effort of learning and adapting to a new system and convincing their friends to do the same.

Existing tools do the job, and it can be argued that Zipiko did not achieve the goal of making it simpler to share plans. Sending an SMS is often easier and more straightforward than adding an event in Zipiko. Additionally, from conversations with potential users it became obvious that many people enjoy calling their friends to organize get-togethers.

The high number of competitors launched in the recent months would seem to suggest that a need exists. One of our competitors is worth noting in particular. Presdo was started by Eric Ly, co-founder and CTO of LinkedIn. Presdo therefore has the resources and the connections to develop quickly and gather the attention of users and the media. In addition to this, it is a well-designed and well thought out service, with high usability and advanced features.

Indeed, upon launch, it received a large amount of attention, and many people visited the site, as can be seen by the graph below plotting the number of monthly visitors. However, despite a solid foundation and a strong start, usage of Presdo rapidly dropped, and it is nowadays comparable to that of Zipiko. This is definitely not an encouraging sign for the future of similar services.



6.1.2 Communication of the service

One of the aspects of Zipiko that was perhaps neglected was the communication of the service, its purpose and its functions to casual visitors and receivers of invites. As gathered from conversations with our users, misconceptions abound. For example, it is generally thought that a smart phone is required to use Zipiko. We did not stress enough that the service can be used with any web browser, and that invitees can participate with any phone thanks to the SMS features.

Misconceptions like these ones may be prevented some users from giving the service a second chance.



6.1.3 Social media fatigue

The rapid growth of information causes scarcity of attention. (Iskold 2007)

Zipiko was pushed to market in a time of very high competition for people's attention. After a long period of experimentation with new services, people are showing signs of tiring of adopting new tools and habits, and prefer instead to consolidate to fewer and more useful services.

Companies have been competing for people's attention for many years, if not centuries. However, I theorize that this particular time is different. Social media is a relatively new phenomenon. I argue that it is currently on the down slope of the hype cycle, and we are now heading towards the trough of disillusionment (Fenn & Raskino, 2008).

Seems like social marketing is plunging into the trough of disillusionment on the Gartner's hype cycle graph. (Vedrashko 2009)

For example, we just passed the period of maximum popularity of Facebook applications. Many of our potential users already spent large amounts of energy and time experimenting and selecting Facebook applications, and they are burnt out of the experience and very unlikely to embrace now ones just as quickly, as statistics show (Lorica 2008).

Additionally, Facebook is clearly becoming the de-facto standard for all online social interactions. Zipiko, being outside of it, faces an uphill battle in gaining users and attention away from it.

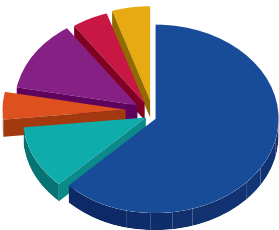
6.1.4 Brand



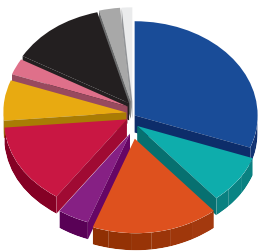
Zipipop's fun and friendly brand, based on Zipi the fish and other characters, was carried over to Zipiko. This gave Zipiko quick recognition and often prompted positive comments. The character is easy to empathize with, and the bright colors and rounded corners are a fresh break from the average company's clean and professional look. However, we experienced behavior and received feedback which might suggest that this kind of image might in fact have been a drawback.

The first problem of the brand lies in the main advantage itself, its playfulness. While the playful aspect evokes positive emotions in some, it associates values to the product that might be counterproductive in the long run. A service with bright colors might encourage play and experimentation, but might also be dismissed as a toy when it comes to real practical use. This is probably the reason why most tools destined for practical purposes for a general audience show a very bland and impersonal look (e.g. Google, Facebook). Values useful for a service such as Zipiko (reliability, confidence), were probably not communicated well enough.

Another problem with a strong distinctive brand is that it is more likely to clash against users' personal tastes. Plain colors (e.g. blue) are in fact preferred by a large percentage of the population, while unusual colors (e.g. orange, green) are not. (Ogrydziak 2005)



Favourite colors, non-designers



Favourite colors, designers (Ogrydziak 2005)

Finally, some of our users might not want to be associated with a service they perceive as childish. When users invite others who have not seen the service before – one of our main strategies for user acquisition – they wonder how their own image will be affected by being associated with Zipiko. Such a brand might not be suitable in such a context.

6.1.5 Social perception

Another potential obstacle to the uptake of Zipiko is how people think the service might be perceived by others. As Zipiko is a social service, it is important for people to be willing to invite their friends to join the service, or at least to

invite them to join a specific event. However, people resist freely using Zipiko, because they worry about their friends' reaction.

USER FEEDBACK My general feel is that friends don't respond very well to Zipiko SMS invitations. I get replies if I send a personal SMS but get very little feedback from SMS's sent by Zipiko.

And these are my closest friends, who know what Zipiko is. I have the feeling that they see Zipiko's SMS like "spam" and don't bother to answer. So I'm afraid to send Zipiko invitations to people who are not so close because I'm afraid of their reaction, they might think I gave their phone number to a spam service...

On the other hand more friends seem to respond well to "non-personal" invitations sent by Facebook to their email... I never tried to send Zipiko invitations by email, maybe I try that from now on.

Finding the source of this issue and ways around it is challenging. It might be related to the communication of the service (i.e. friends will not understand the point of the service, therefore will not receive the invites favorably). The branding of the service might also play a part. Some musicians, for example, expressed concern when we suggested they use Zipiko as they didn't want to be associated with a service whose style did not match theirs.

In general, many users did not feel comfortable with involving even their closest friends. Zipiko was never specifically targeted for use for coordinating with looser acquaintances, which puts it at a disadvantage compared to other more formal event organizing tools. It is much easier, in fact, for a service to be successful if it is able to spread through weak social ties.

Whatever is to be diffused can reach a larger number of people, and traverse greater social distance, when passed through weak ties rather than strong. *Grannovetter (1973; 1983)*

6.1.6 Perception of the mobile web

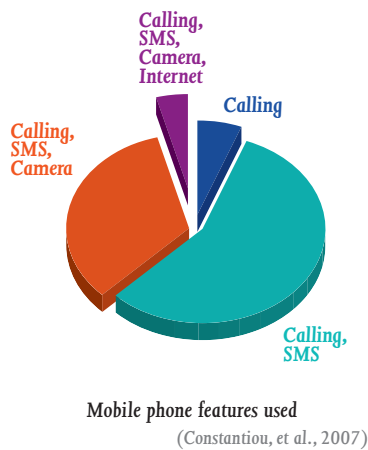
A JPMorgan report (*Khan et al., 2008*) states that "mobile is long-term interesting, but near-term challenging".

Only 15.6% of mobile subscribers actively use mobile Internet services. We think this is due primarily to hardware and technology issues which include slow web page load-times, complex user interfaces, small screens, and low resolutions. (*Khan et al., 2008*)

Improvements in mobile usability moved at half the pace of wired usability. (*Nielsen 2009*)

Despite the introduction of the iPhone, advanced devices with fast connectivity are still rare. Few mobile phone owners regularly access the web on the go.

PC Internet users visit more than 100 domains per month, whereas mobile Internet users visit 6.4 individual web sites per month, on average. (Khan et al., 2008)



Users are often more critical with mobile data services because of the extra costs and efforts of use. Services perceived as useless will not likely reach a critical mass of users. (Li & Chandra 2008)

Indeed, many users mentioned not owning a smart phone as a reason not to use Zipiko.

Smart phone technology has not yet become the norm and uptake of mobile Internet likely has a ways to go. (Khan et al., 2008)

We think mobile internet adoption will not accelerate until the introduction of better phones and technologies. (Khan et al., 2008)

The mobile web still holds a promise for the future. Developing for mobile is a good strategical decision for larger companies who wish to be prepared for the coming trend. However, small companies such as Zipipop would do better to focus on the desktop web, as it can bring more immediate gains.

Web-based mobile collaboration is still a risky domain. In reality, developers should anticipate an incremental process which may take an extended period of investment to see the expected return. (Li & Chandra 2008)

Another reason why the mobile world is challenging is the rapidly changing landscape of habits and tools. The iPhone has accelerated the rate of change. This does present opportunities for fortunate developers able to catch the right wave. However, betting on such opportunities is very high-risk, and is probably not the way to go for a small company wanting to grow a lasting legacy.

The most significant of these changes was the announcement by Apple of the iPhone Software Development Kit. This announcement came as a surprise, only months after Apple had officially endorsed developing mobile web applications targeted for the iPhone. Zipiko development had started in that context. Were we to start now, we would probably take the very different route of developing a traditional web site, and perhaps complementing it with a native iPhone application.

6.2 Process

In the previous section I analyzed some of the possible reasons for the lack-luster reception of Zipiko. Here I will instead focus on how the work proceeded and what could have been done better in order to produce a higher quality service.

6.2.1 Exploration against refinement

During the development of a continuously evolving service such as a web application, it is necessary to strike a balance between exploring new approaches, and consolidating and refining existing solutions.

Erring too much on the side of exploration of new features might not leave enough time to bring those features to an acceptable level of quality. Overall quality will suffer, as will the experience of users who might be frustrated and overwhelmed by an excess of half-finished attempts.

On the other hand, focusing too much on refining existing concepts might close the door for innovative ideas, and cause the loss of the overall picture. Larger and fundamental issues can go unaddressed, and unique opportunities can go untapped.

Our team, formed in a design school, had a natural tendency towards an excess of exploration. The work environment also contributed to this bias. The open-space office encouraged frequent brainstorming and idea generation. Priorities changed often based on the feeling of the moment. Meetings were scheduled frequently, for fear of miscommunication, to the detriment of productive work that could have gone into the refinement of features previously agreed upon.

There's nothing more toxic to productivity than a meeting (Fried et al., 2008)

This bias towards exploration was exaggerated in the later parts of the project, when the team was desperate for new approaches that would hopefully turn the tables in favor of Zipiko. For example, the timeline (page 44) shows how the rate of introduction of new features increased drastically towards the second Mobile 2.0 conference milestone. I believe this explains in large part the low level of polish in the final result.

The trends nowadays even seem to suggest that an emphasis on refinement might be a better choice. Successful services such as Twitter and those by 37signals start with a simple concept, then spend most effort refining it rather than adding to it.

6.2.2 Prioritisation

The emphasis on the user was always strong. We took our user's feedback seriously and did regular user tests.

However, the user feedback gathered was perhaps taken too literally. Single requests or anecdotes were often enough to subvert previously made plans and radically change priorities. This made it hard to follow through on more substantial commitments.

Conversely, we often failed to act on the biggest issues that emerged repeatedly. Doing so would have required the leadership and determination to change and maintain our priorities, which we lacked. Major issues were often forgotten before we had time to address them.

For example, issues with the event creation interface were brought up frequently in feedback and user tests. As it is a crucial part of the service, it should not have gone unaddressed for so long. This interface was one of the first designs, and was perceived as a successful breakthrough, for which I felt in large part responsible. Nonetheless, I tried repeatedly to bring the attention to the issues it presented, and suggested we discard it in favour of newer, simpler approaches. Despite this, a redesign never became high priority. Additions which we assumed would attract new users took precedence, such as email support, groups, and multiple languages.

In general, we should have given priority to addressing known issues, rather than exploring new approaches.

Many who build technology think that a technology's feature set is the key to its adoption and popularity. With social media, this is often not the case. (Boyd 2009)

6.2.3 Mobile version

In retrospect, focusing on a mobile version was a mistake. It held us back both in terms of user perception, and in terms of development costs.

The platform fragmentation problem on mobile devices is still very challenging. Browsers conform to the Web standards at different levels. A program that works on one browser is not guaranteed to work on another browser without extra efforts. (Li & Chandra 2008)

We're all developing nice new social technologies for the mobile phone. And people even want those technologies. But they aren't taking off. Why? There are no cluster effects. If you use IE and I use Firefox, we can still both get to Facebook. If you use Windows Mobile and I use an iPhone or you're on Verizon and I'm on AT&T, the chances of us being able to do the same things with our devices are pretty limited, especially when you take into account the limited nature of data plans. We can't roll out cool new technologies if we can't get cluster effects. We don't just need network effects to get things to spread; we also need to think in terms of complete clusters. And we need to design with this in mind. (Boyd 2009)

Development time devoted to optimizing the experience on mobile devices could have been better spent, perhaps, by focusing on integration with Facebook or third-party sites. I will discuss some of the things that could be done differently in the next section.

6.3 **Next steps**

There were many lessons learned throughout this project. I will describe some of the lessons that can still be applied in the future of the project.

6.3.1 **Metrics and split testing**

Gathering site metrics represents one of the greatest missed opportunities to improve our design process. In the future, Zipiko could benefit by gathering more detailed data about the way people are interacting with the service, identifying trouble points, and testing and evaluating potential solutions based on concrete data.

6.3.2 **Facebook integration**

As Facebook seems to have taken a permanent spot in most of our target's users everyday lives, Zipiko could greatly benefit from integrating with Facebook, in the form a Facebook application.

The recently launched Facebook Connect is another option which allows integration without having to develop a separate Facebook application. However, through our meetings with Facebook itself, it became clear that they have no plans of allowing Connect to work with mobile-enabled web sites.

Additionally, I believe that a large part of the advantage of integrating with Facebook would come not simply from having access to the users' contact list, but also by having a presence within the Facebook site itself, enabling people to use our service without requiring them to specifically visit our site.

6.3.3 **iPhone Application**

Developing an iPhone application could provide a much better user experience for iPhone users. The possibility to access the phone's contacts would reduce one of the biggest barriers to adoption, which is adding friends' contacts within Zipiko.

An iPhone application would also give Zipiko access to the iPhone App Store, a possible revenue source and, more importantly, a potentially efficient marketing channel.

6.3.4 **Re-targeting**

Conversations with Silicon Valley advisors and investors revealed a in interesting insight. Developing a successful web service which targets consumers in

general is an ambitious undertaking. Most successful examples were built over many years by large teams of developers. This is regardless of the perceived complexity of the service itself. What takes a lot of time and resources is iterating and improving the site to get to make the experience smooth enough for people to start using it.

A better approach for the future of Zipiko, given the limited resources available, would be focusing on a niche of users with more atypical use cases.

6.3.5 Funding

Developing a successful social media site takes significant amounts of time and money. For a small company such as Zipipop, with limited resources, a consumer web project such as Zipiko is too ambitious without the possibility of acquiring extra resources.

Lack of funding is the fundamental reason why the project could not continue. The inability to attract funding is often attributed to the lack of attention that Zipiko managed to gather.

However, I believe that funding has to come first, in order to support development up to the point when the service can become attractive to users. The real problem is that funding for this kind of project is not readily available in Finland, and looking for it elsewhere in these economic times proved challenging.

Nobody expressed interest in content, social media or social network sites. Reasons cited included market saturation, issues with ad models, supply exceeds demand. This would be blogs, social networks, social shopping, web TV sites, etc., seed rounds and thereafter. Nobody appeared to believe there'll be big exits for content sites in the future, with exception to well funded, large sites. Few appeared to think that any site launched in the past year will be able scale to that level at this point in the market. (Handschiegel 2008)

Zipiko's business model, based on sponsored events, is innovative and effective compared to traditional online advertising models. However, "experimental forms of advertising, including mobile, will suffer the most in the current economic downturn" (Khan et al., 2008).

Final words

Despite the flaws of the service, I believe many things were done right throughout the project, and many of the choices resulting from the process were sound ones. Ultimately, the drawbacks of the final result were the greatest opportunities for learning about which working methods are most effective, and what works best for our users.

With the lessons learned through the work so far, and the insights gathered by analyzing the project in hindsight, from a distance, as part of this thesis work, the process could be further improved to the point that it could produce a high quality service.

What remains to be seen is whether a service like Zipiko could find, in the current climate, the resources it needs to grow and whether there is a role for it within people's increasingly hectic daily lives.

I hope that this thesis will serve both for those wishing to learn, like we did, from our successes and mistakes, and as a reference for other user experience designers wishing to adopt some of my findings.

7 Acknowledgements

I thank all the people that worked with me on the project: Richard von Kaufmann, Helene Auramo, Taro Morimoto, Tuomas Laitinen, Diana De Sousa, Abhigyan Singh, Robert Aarts, Sébastien Dodin, Petri Rötke.

I similarly thank those whose precious advice helped guide the project and our thinking: Peter Vesterbacka, Bob Goodson, Gady Nemivrosky.

I thank my thesis tutor Jon Fabritius, and I thank Martin Gimpl, William Volcoff, Kompit Panasupon, Maria Simi and Giuseppe Attardi for reading drafts of this thesis.

Finally, I'd like to thank all the users that helped make Zipiko better.

8 Bibliography

- Appelquist, D. et al., 2008a. Mobile 2.0 Europe. [Online]
Available at: <http://mobile20.eu/>
- Appelquist, D. et al., 2008b. Mobile 2.0. [Online]
Available at: <http://mobile2event.com/>
- Atwood, J., 2009. Procrastination and the Bikeshed Effect. [Online] Coding Horror.
Available at: <http://www.codinghorror.com/blog/archives/000922.html>
- Berkun, S., 2000. The art of UI prototyping. [Online] Available at: <http://www.scottberkun.com/essays/12-the-art-of-ui-prototyping/>
- Boyd, D., 2009. Social Media is Here to Stay... Now What? Microsoft Research Tech Fest. Available at: <http://www.danah.org/papers/talks/MSRTechFest2009.html>
- Buchheit, P., 2009. Communicating with code. [Online] Available at: <http://paulbuchheit.blogspot.com/2009/01/communicating-with-code.html>
- Buzzd, 2009. Buzzd. [Online] Available at: <http://buzzd.com/>
- Celik, 2007. Three Hypotheses of Human Interface Design. [Online] Tantek's Thoughts. Available at: <http://tantek.com/log/2007/02.html#d19t1813>
- Center'd, 2009. Center'd. [Online] Available at: <http://centerd.com/>
- Constantiou, I.D Damsgaard, J. & Knutsen L., 2007. The four incremental steps toward advanced mobile service adoption. *Communications of the ACM*, 50(6), pp. 51–55.
- Essa, N., 2008. World Map showing the popularity of social networks around the world. [Online] Available at: <http://www.oxyweb.co.uk/blog/socialnetworkmapoftheworld.php>
- Evite, 2009. Evite. [Online] Available at: <http://evite.com/>
- Facebook, 2009. Facebook. [Online] Available at: <http://facebook.com/>
- Fadeyev, D., 2008a. Manage Focus Effectively Using Contrast. [Online] Usability Post. Available at: <http://www.usabilitypost.com/2008/10/02/manage-focus-effectively-using-contrast/>
- Fadeyev, D., 2008b. 10 Useful Techniques To Improve Your User Interface Designs. [Online] Smashing Magazine. Available at: <http://www.smashingmagazine.com/2008/12/15/10-useful-techniques-to-improve-your-user-interface-designs/>

- Fadeyev, D., 2009. 10 Useful Web Application Interface Techniques. [Online] Smashing Magazine. Available at: <http://www.smashingmagazine.com/2009/01/12/10-useful-web-application-interface-techniques/>
- Falkinger, J., 2005. Limited Attention as the Scarce Resource in an Information-Rich Economy. IZA Discussion Paper [Online]. 1538. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=695205
- Fitzsimons, G. J. et al., 2002. Non-Conscious Influences on Consumer Choice. *Marketing Letters* [Online]. 13 (3). Available at: http://marketing.wharton.upenn.edu/ideas/pdf/Fitzsimons/nonconscious_influences_on_consumer_choice_2002.pdf
- Fried, J. et al., 2005. Getting Real. 37signals. Available at: <http://gettingreal.37signals.com/>
- Fried, J., 2005. Getting Real, Step 1: No Functional Spec. [Online] 37signals. Available at: <http://www.37signals.com/svn/archives/001050.php>
- Garret, J.J., 2002. *The Elements of User Experience*. New Riders.
- Google Calendar, 2009. Google Calendar. [Online] Google. Available at: <http://calendar.google.com/>
- Graham, P., 2009. Startups in 13 Sentences. [Online] Available at: <http://www.paulgraham.com/13sentences.html>
- Granovetter, M.S., 1973. The strength of weak ties. *The American Journal of Sociology*, 78(6), pp. 1360–1380.
- Gruber, J., 2007. Deal With It. [Online] Daring Fireball. Available at: http://daringfireball.net/2007/03/deal_with_it
- Handschiegel, P., 2008. Startup Climate [Online]. Available at: <http://patriciahandschiegel.tumblr.com/post/75896607/startup-climate>
- Hendrickson, M., 2009. Looks Like Facebook Just Took The Top Spot Among Social Media Sites. [Online] TechCrunch. Available at: <http://www.techcrunch.com/2009/02/12/looks-like-facebook-just-took-the-top-spot-among-social-media-sites/>
- Hinton, A., 2008. Personas and the Role of Design Documentation: How it's less about deliverables, and more about design. [Online] Boxes and Arrows. Available at: <http://boxesandarrows.com/view/personas-and-the>

- Hopkins, C., 2008. Mobile Optimized Websites, More Harm Than Good? [Online] MacBlogz. Available at: <http://www.macblogz.com/2008/12/04/mobile-websites-more-harm-than-good/>
- Iskold, 2007. The Attention Economy: An Overview. [Online] ReadWriteWeb. Available at: http://www.readwriteweb.com/archives/attention_economy_overview.php
- Katz, M.L. & Shapiro C., 1985. Network Externalities, Competition, and Compatibility. *The American Economic Review*, 75(3), pp. 424–440.
- Fenn J., Raskino, M., 2008. Mastering the Hype Cycle. Harvard Business Press.
- Kaushik, A., 2009. Stop bouncing: tips for website success. [Online] The Official Google Blog. Available at: <http://googleblog.blogspot.com/2009/02/stop-bouncing-tips-for-website-success.html>
- Khan I. et al., 2008. Nothing but Net, JPMorgan. Available at: <http://www.scribd.com/doc/11482768/JPMorgan-Nothing-but-Net-1509>
- Krug, S., 2000. Don't Make Me Think! A Common Sense Approach to Web Usability. Que.
- Kumparak, G. 2009. 280 North's Atlas bridges the gap between Web Apps and native iPhone applications. [Online] TechCrunch. Available at: <http://www.mobilecrunch.com/2009/03/04/280-norths-atlas-bridges-the-gap-between-web-apps-and-native-iphone-applications/>
- Li, D. & Chandra, U., 2008. Building Web-Based Collaboration Services on Mobile Phones. *International Symposium on Collaborative Technologies and Systems*, 19(23).
- Limbo, 2009. Limbo. [Online] Available at: <http://limbo.com/>
- Lorica, B., 2008. Facebook Growth By Country and the Slowdown in App Usage. [Online] O'Reilly Radar. Available at: <http://radar.oreilly.com/2008/07/facebook-growth-by-country-and.html>
- MacLeod, E., 2006. O2's iPhone unlimited data = unlimited! WOO!. [Online] Mobile Industry Review. Available at: http://www.mobileindustryreview.com/2007/11/o2s_iphone_unlimited_data_unlimited_woo.html
- Medero, S., 2007. Paper Prototyping. [Online] A List Apart. Available at: <http://www.alistapart.com/articles/paperprototyping>
- Meetup, 2009. Meetup. [Online] Available at: <http://meetup.com/>

- Mixin, 2009. Mixin. [Online] Available at: <http://mixin.com/>
- Moggridge, B., 2006. *Designing Interactions*. The MIT Press.
- Mujagic, 2008. The worst crisis since 1929, says ex-ECB board member. [Online] FEM. Available at: <http://www.fembusiness.nl/web/artikelSma1/29338/The-worst-crisis-since-1929,-says-ex-ECB-board-member.htm>
- Neil, T., 2009. *Designing Web Interfaces*. O'Reilly Media.
- Net Applications, 2009. Mobile Browsing by Platform Market Share. [Online] Net Applications. Available at: <http://marketshare.hitslink.com/mobile-phones.aspx?qprid=55&sample=31>
- Nielsen, J., 2009. Mobile Web 2009 = Desktop Web 1998. [Online] Jakob Nielsen's Alertbox. Available at: <http://www.useit.com/alertbox/mobile-usability.html>
- Nokia, 2008a. Mobile Innovation Competition 2008 for Students. [Online] Forum Nokia. Available at: http://www.forum.nokia.com/Events/Training_and_Educational_Events/Forum_Nokia_for_Universities/Mobile_Innovation_Competition_2008.xhtml
- Nokia, 2008b. Series 40 Platform. [Online] Forum Nokia. Available at: http://www.forum.nokia.com/Resources_and_Information/Explore/Software_Platforms/Series_40/
- Ogrydziak, J., 2005. Color Preference as a Function of Context. Blackquare LLC. Available at: http://www.blacksquare.com/work/pdfs/color_preference.pdf
- Olsen, H., 2005. Navigation blindness. [Online] Guuui. Available at: http://www.guuui.com/issues/01_05.php
- PatternTap., 2008. Buttons. PatternTap. Available at: <http://patterntap.com/tap/collection/buttons>
- Penzo, M., 2006. Label Placement in Forms. [Online] UXMatters. Available at: <http://www.uxmatters.com/mt/archives/2006/07/label-placement-in-forms.php>
- Powazek, D., 2001. *Design for Community*. Waite Group Press.
- Presdo, 2009. Presdo. [Online] Available at: <http://presdo.com/>
- Renkoo, 2009. Renkoo. [Online] Available at: <http://renkoo.com/>
- Rhodes, J. S., 2002. Evolution, Usability, and Web Design. [Online] Available at: <http://webword.com/moving/evolution.html>

- Ries, 2008. *The one line split-test, or how to A/B all the time*. [Online] Lessons Learned. Available at: <http://startuplessonslearned.blogspot.com/2008/09/one-line-split-test-or-how-to-ab-all.html>
- Ries, 2009. *Work in small batches*. [Online] Lessons Learned. Available at: <http://startuplessonslearned.blogspot.com/2009/02/work-in-small-batches.html>
- Roche, M., 2004. *Scientific Web Site Optimization using AB Split Testing, Multi Variable Testing, and The Taguchi Method*. [Online] WebProNews. Available at: <http://www.webpronews.com/topnews/2004/07/26/scientific-web-site-optimization-using-ab-split-testing-multi-variable-testing-and-the-taguchi-method>
- Rubin, A., 2008. *The future of mobile*. [Online] The Official Google Blog. Available at: <http://googleblog.blogspot.com/2008/09/future-of-mobile.html>
- Schonfeld, E., 2008. *Facebook Is Not Only The World's Largest Social Network, It Is Also The Fastest Growing*. [Online] TechCrunch. Available at: <http://www.techcrunch.com/2008/08/12/facebook-is-not-only-the-worlds-largest-social-network-it-is-also-the-fastest-growing/>
- Snell, S., 2009. *Mobile Web Design Trends For 2009*. [Online] Smashing Magaine. Available at: <http://www.smashingmagazine.com/2009/01/13/mobile-web-design-trends-2009/>
- Snyder, C., 2003. *Paper Prototyping: The Fast and Easy Way to Design and Refine User Interfaces*. Morgan Kaufmann.
- Time., 2007. *5 Worst Websites*. [Online] Time Magazine. Available at: http://www.time.com/time/specials/2007/article/0,28804,1638344_1638341_1638337,00.html
- Twitter, 2009. *Twitter*. [Online] Available at: <http://www.twitter.com/>
- Upcoming, 2009. *Upcoming*. [Online] Yahoo!. Available at: <http://upcoming.yahoo.com/>
- Vedrashko, I., 2009. *Social Marketing Down on Hype Cycle Graph*. [Online] AdLab. Available at: <http://adverlab.blogspot.com/2009/01/social-marketing-down-on-hype-cycle.html>
- Veen, J., 2000. *The Art and Science of Web Design*. New Riders Press.
- von Kaufmann, R., 2009. *Intention Broadcasting*. MA: University of Art and Design Helsinki.

Welie, M. v., 2008. *Autocomplete*. [Online] Interaction Design Pattern Library,
Available at: <http://welie.com/patterns/showPattern.php?patternID=autocomplete>

Wroblewski, L., 2008. *Web Form Design: Filling in the Blanks*. Rosenfeld Media.

W3C, 2008, *MobileWeb Best Practices*. [Online] W3C Recommendation.
Available at: <http://www.w3.org/TR/mobile-bp/>

Yahoo!, 2008. *Auto Complete*. [Online] Design Pattern Library. Available
at: <http://developer.yahoo.com/ypatterns/pattern.php?pattern=autocomplete>

Zipipop, 2008. *Zipipop History*. [Online] Available
at: <http://about.zipipop.com/history>

